

MAY 1954

Transportation
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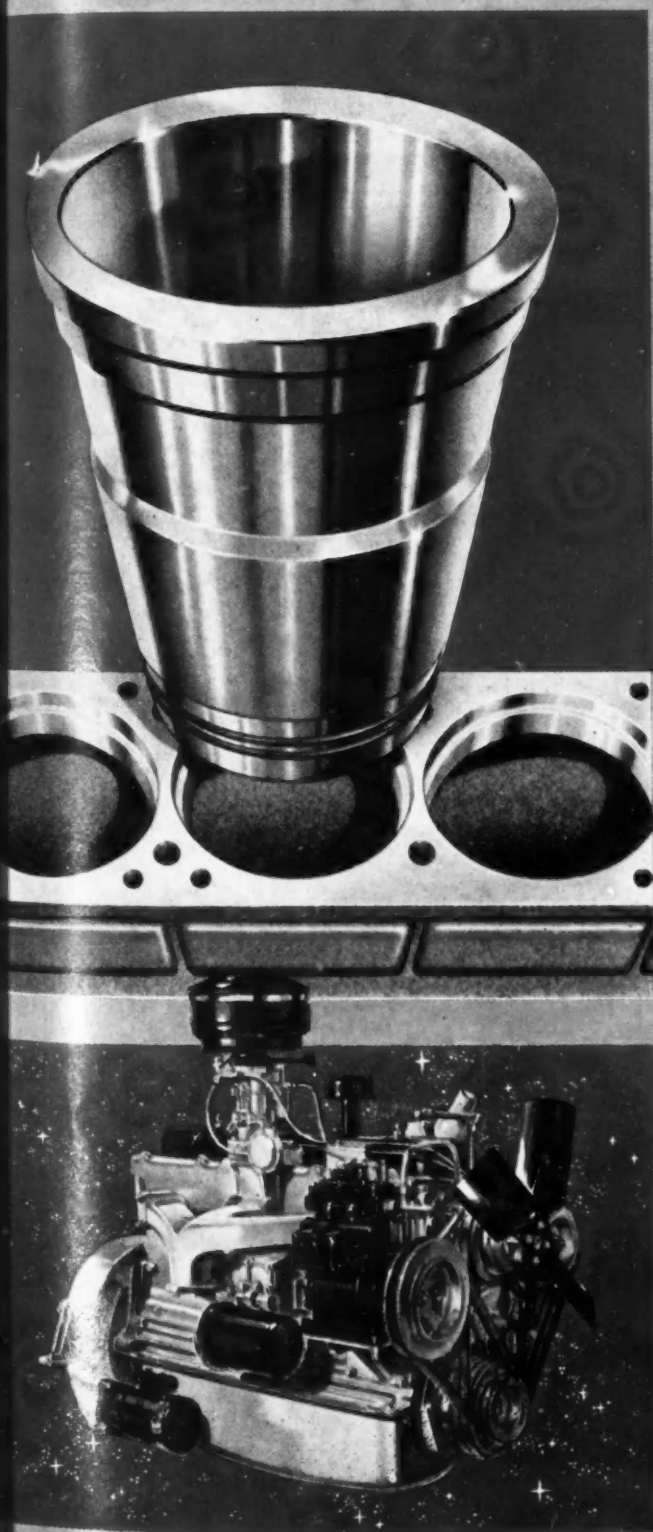
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**TWO NEW
Features**
PAGES 17 and 71

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR TRUCK AND BUS FLEET OPERATORS



No Truck Engine Can Be Modern without ... REPLACEABLE WET SLEEVES

IN MODERN REO GOLD COMETS. All cylinder walls are identical cast-iron sleeves, accurately machined inside and out for uniform thickness, uniform heat dissipation — perfect full-stroke piston-fit without porous spots, thin spots, or hot spots. Result: Each piston always does its full share of the work. You get high efficiency.

AT MAJOR OVERHAULS. REO Replaceable Sleeves eliminate reboring — save down-time, labor; do a much better job. Because no part of the block is destroyed, there's no need for oversize parts — no limit to the number of times the job can be repeated. Modern *Gold Comets* outlast the chassis.

In new REO Trucks, or as replacement engines for trucks of any make, lifetime *Gold Comets* are your assurance of long-term, low-cost operation. Choice of gasoline-powered or factory-built engines for liquefied petroleum gas.

REO GOLD COMET ENGINES

NOW! A new 160-h.p. REO Gold Comet for economical LP-Gas
For interesting facts about modern engine developments, write for "Horsepower Is Our Business," a timely, non-technical discussion of trends by W. M. Walworth, REO Chief Engineer and recognized engine authority.

REO MOTORS, INC., Lansing 20, Michigan

DODGE LEADS IN TOTAL POWER!

Dodge V-8 tractors in the popular 38,000-lb. to 48,000-lb. G.C.W. range are the most powerful of any of the leading truck makes!



It's total power that moves loads... the more horses you have, the more load you can haul, and you get greatest total power in the new Dodge V-8 tractors! Here's how Dodge leads:

Dodge trucks cost less to operate—with the extra-efficient Dodge hemispherical combustion chambers, short stroke design, and low-pressure twin exhaust systems with over 50% larger muffler capacity! Maintenance-saving engineering extras (like those shown) mean more money in your pocket, too!

PLUS a better deal for the man at the wheel: easy-chair seat, 39° turning angle for sharpest turning, 951 sq. in. windshield for unequalled visibility. And 102" compactness (front bumper to back of cab) lets you haul maximum-length trailers, bigger payloads! For the best all-around truck deal, see your friendly Dodge dealer soon... you'll like doing business with him!

CERTIFIED NET HORSEPOWER

| G.C.W. | DODGE | Truck F | Truck G | Truck H* |
|--------|-------|---------|---------|----------|
| 38,000 | 143 | 134 | 131 | 117.5 |
| 48,000 | 157 | 151 | 140 | 138 |

*G.C.W. not published—based on equivalent G.V.W.'s.

| | DODGE V-8 | Truck F | Truck G | Truck H |
|---------------------------------|-----------|---------|---------|---------|
| Positive Exhaust Valve Rotators | Yes | No | No | No |
| Sodium-Filled Exhaust Valves | Yes | No | No | No |
| Intake Valve Seat Inserts | Yes | No | No | No |

A BETTER DEAL FOR THE MAN AT THE WHEEL WITH
DODGE "Job-Rated" TRUCKS

See "Break the Bank", ABC-TV, Sundays

Hear "The Roy Rogers Show", NBC Radio, Thursdays

See "Make Room for Daddy", ABC-TV, Tuesdays



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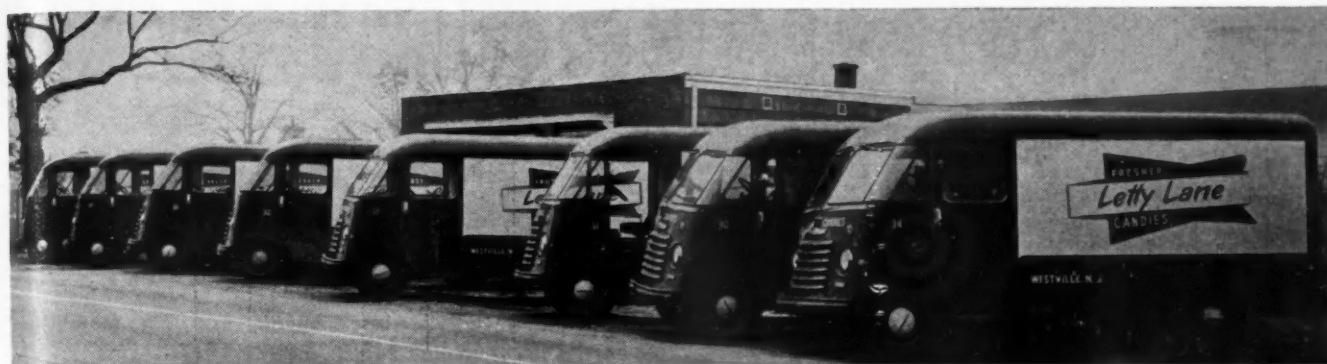
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More Deliveries for Fewer Dollars with ALUMINUM ALLOY BODIES

EVERY TRUCK is paid for in *monthly installments*. The first cost is merely the down payment — it's like the ante in a card game or the cover charge in a restaurant. That first cost is a small fraction of the *total* operating and maintenance costs over the years. How many years is determined by the body — if the body weighs too much, dents easily, corrodes badly and depreciates rapidly it means fewer deliveries at higher cost.

Aerobilt Aluminum Alloy Bodies *weigh less, dent less, corrode less, depreciate less, last longer and carry more* payload. They are of stress-bearing-shell construction, free of obstructing posts, ribs and liners — providing more loadspace with less overall width.

Aluminum Alloy weighs much less than steel, so Olson Kurb-Side Bodies weigh less, yet they have 1/8"-thick side panels, side skirts, rub rails, rear quarter panels and floor panels.

Saving deadweight saves gasoline, tires, brakes, clutches, springs, king pins, spindles and lessens strain on the engine and cooling system in frequent-stop, congested-traffic deliveries.

Saving denting saves high-priced

repair time — Olson 1/8"-thick aluminum alloy panels and rugged rear bumpers (extending 9 1/2 inches rearward) *really prevent denting*.

Olson Kurb-Side Bodies corrode less and outlast their chassis. Users transfer them to new chassis — they get two bodies for the price of one.

Because they depreciate less and last longer, they sell for twice as much at used truck lots — second hand dealers can't get enough of them.

Bigger, *manhigh* payloads on short wheelbases enable routemen to deliver more in less time for more years. The routeman's pay is the biggest truck cost, so you save where it counts most with Olson Kurb-Side Bodies.

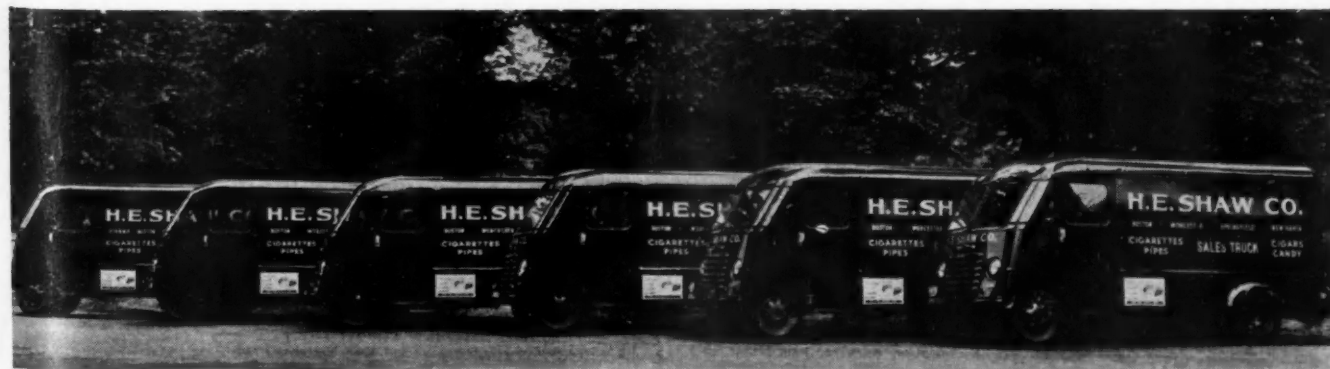
Demand for Olson Aluminum Alloy Bodies exceeds the supply — another factory is under construction. They're hard to get and worth waiting for — but *beware of imitations!*

Make sure now of Delivery Economies next fall and winter — order Olson Kurb-Sides from your own Chevrolet, Ford or GMC dealer. Write us today for catalogue and the "ABC's of Delivery Truck Selection" — free on request.

Yours for Delivery Economies.



J. B. E. OLSON CORPORATION ALUMINUM ALLOY BODIES BY *Grumman*
1740 BROADWAY, NEW YORK 19, NEW YORK



COMMERCIAL CAR

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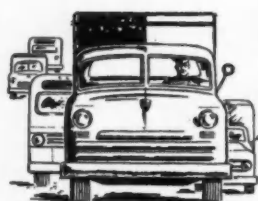
New techniques with electronic scales show surprising fallacies in present methods of axle weighing. Tests, conducted with moving vehicles, point-up effect of load shift, "couples" and torsion. This report based on data from E. S. Safford, president of Control Cells Corp., tells what was discovered, suggests what can be done to keep weights in line.

Trucks and the Roads They Use..... 71

This special eight-page feature on such critical problems as ton-mile taxes, road damage, highway costs and other subjects of vital importance to truck and bus fleet operation is designed to provide fleet men with the right answer at the right time in their efforts to obtain fair play rather than punitive taxation and regulation. It is presented in the form of 31 questions frequently asked about the truck-road relationship by legislators, government officials, highway builders and the public together with answers verified by several authoritative sources.

Mechanic Training Classes Solve Shortage... 79

In Cleveland, Reno Aquilano, shop foreman for Reliable Trucking Co., discovered a lack of trained mechanics. Here is how he, in cooperation with the union and the city's Board of Education, organized maintenance training classes.



Mr. Executive, see
page 17 for . . .

UP FRONT
WITH **CCJ**

A concise, monthly report on fleet highlights

Appearance Maintenance at Gray Line..... 80

Gray Line of San Francisco has to provide bus transportation for nearly 700 tourists a day, summer and winter. In an interview, Leo J. Olson, superintendent of equipment, tells how the fleet's maintenance program is organized and carried-out to provide the required attractive, safe, dependable and interesting operation.

Control Tower Keeps Trucks on the Beam.... 82

"Cleared for take-off." "Roger. Over and out." That's almost but not quite the way trucks are dispatched from Ringsby Truck Lines' airport-type control office. The idea was borrowed from the airlines as a result of the fleet's experience in operation of its own seven-passenger plane. The office on top the tower controls truck movement at the Denver terminal, is the fleet's refueling and weighing center.

How to Design Reefers Better..... 84

Hunter Mfg. Co. Refrigeration Engineer S. F. Allyne says, "A deficiency exists in most highway reefer vans which could be eliminated by simple and relatively inexpensive modification of the interior." Problem is to maintain all the lading at proper temperature, avoid hot spots. He shows how directed air flow and proper stripping will provide correct circulation in the cargo area.

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COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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COMMERCIAL CAR JOURNAL is published monthly by Chilton Co., N. W. Cor. Chestnut & 56th Sts., Philadelphia 39, Pa. Subscription price: United States and Possessions, \$3.00 per year; all other countries \$10.00 per year. Single copies 50¢, except Apr. and Nov.—\$1.00. Acceptance under Section 34.64 P. L. & R. authorized.

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COMMERCIAL CAR JOURNAL, May, 1954

Top Notch

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Shop Hints

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WILLIAM H.

GEOR

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COMMERCIAL

MAY 1954 VOLUME LXXXVII, NO. 3
Copyright 1954 by Chilton Company (Inc.)

Top Notch Maintenance by Consolidated . . . 90

A three-page picture trip through the shops of Consolidated Freightways, the nation's second largest common carrier. Commercial Car Journal Editor Bart Rawson made the original trip, selected the pictures that best illustrate the "world's largest truck shop facility."

Automatic Transmissions: If-How-When? . . . 94

Merrill C. Horine, consulting engineer, Mack Mfg. Co., reviews the possibilities of automatic transmissions.

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One of the Publications Owned by
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COMMERCIAL CAR JOURNAL, May, 1954

To a fleet maintenance chief
who has to "keep 'em rolling"!



Here's Hygrade's pump with the "never-say-die" diaphragm

Nobody has to tell *you* that it's the diaphragm that makes or breaks a fuel pump. You've seen too many perfectly good pumps fold up after only a few thousand miles because the diaphragm "went".

Here's HYGRADE's solution — the one-piece, non-corrosive *Monoflex* diaphragm that *lasts for the life of the pump*. And it's not just the rugged material in it that makes *Monoflex* the longest-lived diaphragm on the market — it's also the way it's fitted. The diaphragm is so tightly sandwiched between the smooth casting surfaces that not even the *smell* of gas can escape.

Its great diaphragm isn't the only reason for this HYGRADE fuel pump's popularity with fleet men. For instance, the rocker arm is heat-treated for extra strength and minimized wear. And its valve springs are phosphor bronze, oil-treated, remain perfectly elastic.

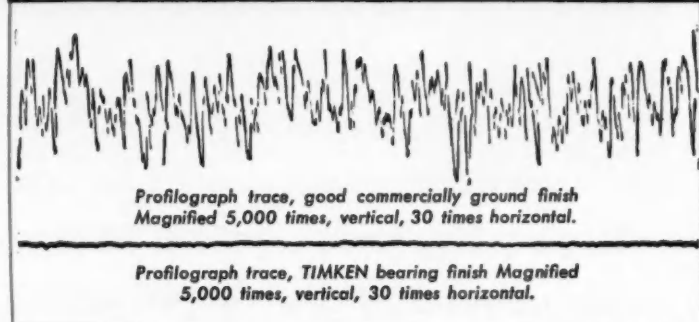
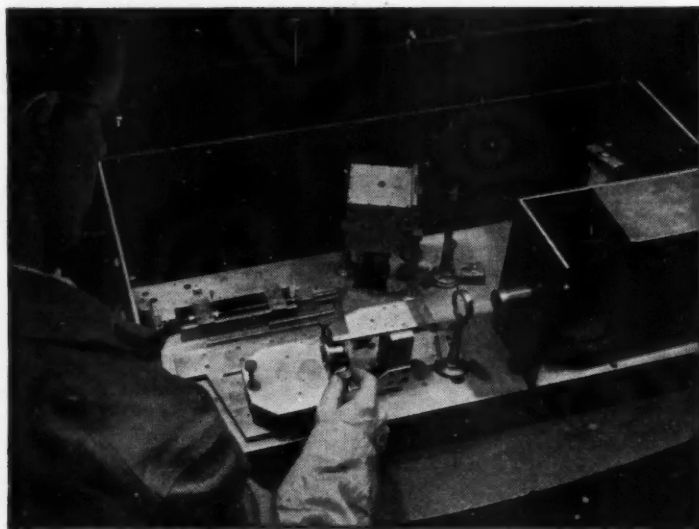
Write our engineering department for complete details. That's HYGRADE PRODUCTS DIVISION, Standard Motor Products, Inc., 37-18 Northern Boulevard, Long Island City 1, New York

HYGRADE



Carburetor Kits • Fuel Pumps & Kits • Speedometer Cables & Casings

We put a tape measure to a millionth of an inch



*(Another reason why TIMKEN® bearings
are first choice with truck manufacturers)*

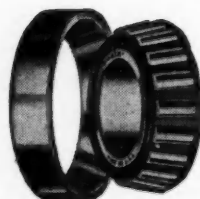
WE developed the granddaddy of this interesting looking machine back in 1928. And we've been constantly improving it ever since. It's a profilograph. It checks contours and smoothness of circular surfaces to within one millionth of an inch and records them on a graph like the one shown below the instrument. It has helped the Timken Company to develop the grinding techniques and machines responsible for the microscopic surface finish that helps make today's Timken® tapered roller bearings so accurate—and first choice with truck manufacturers.

The Timken Company is the acknowledged leader in: 1) advanced design, 2) precision manufacture, 3) rigid quality control. And we're the only bearing company that controls quality every step of the way, because we're the only company in the United States that makes its own steel. When you install a new tapered roller bearing, always make sure it's stamped with the trademark "Timken". Send now, on your company letterhead, for your free copy of "Timken Tapered Roller Bearings, Their Care and Maintenance". Dept. JCC-5, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

SINCE THEY'RE BEST WHEN THE TRUCK IS NEW, THEY'RE BEST FOR REPLACEMENT, TOO!

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

The OVERLOAD

E D I T O R I A L C O M M E N T

How Good Is Your Public Relations?

PUBLIC RELATIONS is a tough thing to define. Selfishly it has been called "the art of selling the public on your point of view."

When you stop to think of it, that's just about all a lot of public relations is. It pops up at a time of crisis; works desperately (and expensively) to stave off a bad piece of legislation; or it campaigns for a good one. Then, as suddenly as it came to life, it goes back in the closet when the campaign is over.

Always in this type of public relations the emphasis is on the public. But we like to think of it the other way around with the emphasis on *relations*. That way it could well mean "the art of getting along with your public RELATIONS." Down south they call them kinfolks or kissin' cousins. Up north they're more apt to be blood relatives, in-laws or just plain relations.

The truck industry has a lot of very real relations—just about everybody with whom it shares the highways and just about all the public officials with whom it comes in contact. That's why we ask: how good is your public relations—meaning your conduct with your public RELATIONS?

Unless you're the exception that proves the rule (and thank God for the exceptions!) odds are running high that it is not all it could be. Louis Seltzer, editor of the *Cleveland Press* and famed for not pulling punches, put it quite succinctly last month before the trucking audience in his home town. Speaking on Ohio's current reciprocity mess he told the truckers that they had their "noses out of joint." Then he added, hastily: "The Governor of Ohio has his nose out of joint. The Legislature has its nose out of joint. The newspapers—including ours—have their noses out of joint." And he concluded: "It

is high time to attack this vital problem on a constructive basis." In other words, just about everybody's public relations pants were down and it's high time suspenders be put in order.

As a step in that direction may we suggest that we ask ourselves a series of questions:

Do our public RELATIONS understand our problems?

Do they know anything about the taxes we pay?

Do they look upon us as a good relative?

Do they know as much about us as we would like them to know? And finally:

Do we know as much about ourselves and our industry as we ought to know? When somebody asks why trucks should not be banned from the highways, or whether trucks pay their way, or what's wrong with a ton-mile tax, or any number of similar questions . . . do we have the right answer ready?

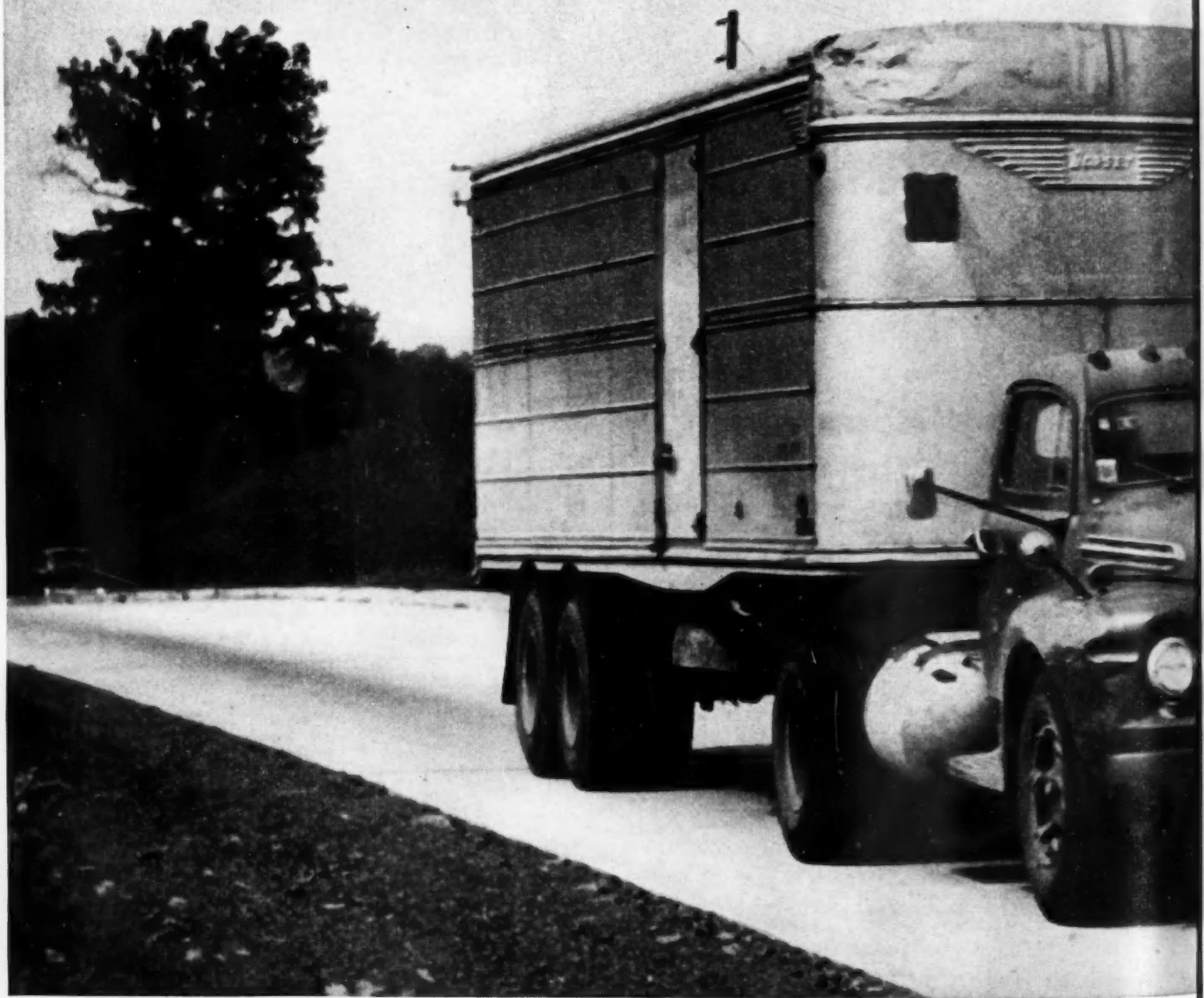
For the past several months we've been as bothered about these questions as the next guy. And, like most people, we didn't know too many of the answers. So we began digging. First thing you know our list had grown to 31 questions. Then we really dug for the right answers, asking expert help from a great many sources. Finally, we checked the results with industry leaders all over the country for factual accuracy.

The result—questions and answers—are contained in a special feature which begins on page 71 of this issue. We sincerely believe these questions and answers will be of help to you, as they have been to us in clarifying our own thinking. We hope you will keep this feature handy for future reference. You may want to pass it on to others of your staff or to some of your own public RELATIONS. Comments are welcome and reprints are available.

Bart Rawson

Editor

MORE BETWEEN



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COMMERCIAL



At Your Service

TIMELY NOTES ON MAINTENANCE AND OPERATION

by MURRAY SIMKINS Managing Editor

Cleanliness and Breaker Points

STANDARD Motor Products, in a recent service bulletin, emphasizes the importance of cleaning new breaker points. Unless the mechanic's hands are really clean, they say, the probability is that some dirt, oil or grease will get on the tungsten surfaces of the points. If this is permitted to happen, the points may burn, operate erratically or, if sufficient oil or dirt is present on the surface, the engine may not even start.

The cleaning consists simply in wiping the tungsten surfaces of the breaker arm with a clean, lintless cloth or a piece of clean fish paper. This should be done as the last step in the installation. The use of some kind of dirt solvent like carbon tetrachloride is also desirable. Whenever such solvent is used, it is advisable to wait until it evaporates, then wipe off any film that the solvent may leave, using a clean strip of fish paper or any other hard, smooth material that will not leave lint between the points.

Maintenance and Safety

MECHANICAL defects cause at least 6 per cent of the traffic accidents, and perhaps higher if the facts were known. Emil Gohn, of Atlantic Refining Co., told the North Carolina Safety School recently. While speed is the worst offender—with reckless and drunken driving close behind it—many accidents are a result of improperly maintained vehicles. This conclusion, reached by the Inter-Industry Highway Safety Committee, further reports that one out of every six vehicles is being operated with dangerous brakes; one out of 11 vehicles has faulty lights; and one out of every 13 vehicles has unsafe steering.

Accidents attributable to brake failure have been and to an even greater extent continue to be the heart of the mechanical defect accident picture. Such accidents constitute over 40 per cent of the total mechanical defect accidents.

In Pennsylvania for the year 1952, there were

231,880 reportable accidents involving all types of vehicles. Passenger cars comprised 84 per cent of total vehicle registration, and were involved in 86 per cent of all accidents. Commercial vehicles operating at higher yearly mileages are showing a definite trend in accident rate reduction.

Pennsylvania has a law requiring all vehicles to be inspected twice a year. These inspections are performed by authorized inspection stations at a nominal cost, and the total inspections made in 1952 totaled 6,881,609. This figure, of course, covers two inspection periods. What are they finding on the vehicles being inspected?

There is no breakdown of the over 3 million vehicles registered, but a spot check involving 5000 car inspections revealed that 2173 vehicles, or 43.5 per cent were passed through as non-deficient and 2827 vehicles, or 56.5 per cent, had deficiencies which required attention. The deficiencies amounted to 4124, or an average of 1.5 deficiencies per car, broken down as follows:

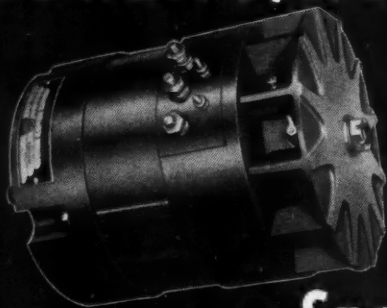
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|---------------|------|-----------------------|
| Tires | 42 | adjustments & repairs |
| Brakes | 1351 | " " " |
| Steering | 376 | " " " |
| Lights | 1793 | " " " |
| Glass | 60 | " " " |
| Miscellaneous | 502 | " " " |

Please observe that 76 per cent of the deficiencies were concerned with two items, namely, *brakes* and *lights*.

Another significant point of interest concerns fire accidents caused by mechanical defects. Referring to data released by the Interstate Commerce Commission, Bureau of Motor Carriers, Section of Safety, we find that there were 159 fire accidents, causing 9 fatalities, 61 injuries, and property damage close to one million dollars. The major mechanical defects responsible for the fires include the following, in the order of magnitude given: tires, lights or wiring, engine, service brakes, fuel line,

(TURN TO NEXT PAGE, PLEASE)

FOR MORE RUNS FEWER LAYUPS



Specify **Leece-Neville** Alternators

Over 7 years of fleet performance has proved the unmatched reliability of L-N Alternators. Many of them have run 500,000 miles and more with only routine maintenance. With 25 to 40 amps at idle and high output at all speeds, L-N Alternators carry the entire electrical load, leaving batteries for starting only. Think what this freedom from electrical breakdown can mean for your fleet! There are 6-volt L-N Alternator Systems of 50 and 95 amps capacities; 50 to 150 amps for 12 volts. Be sure to specify L-N.

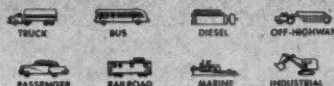
Out front over 43 years

Since 1909 Leece-Neville has been in the forefront of invention, development and perfection of automotive electric equipment. The first generators and cranking motors used as standard equipment on automobiles were built by Leece-Neville, who also brought out the first third-brush generator. Today, with outstanding engineering and production facilities, L-N is the acknowledged leader in design and manufacture of special and heavy-duty electric units. The Leece-Neville Company, Cleveland 14, Ohio.

**YOU CAN
RELY ON**

Leece-Neville

ALTERNATOR SYSTEMS • GENERATORS
CRANKING MOTORS • REGULATORS
SWITCHES • SMALL MOTORS



At Your Service

Continued from Page 9

and tank. This group was responsible for almost 80 per cent of the fire accidents. The remaining 20 per cent involved such items as parking brake, exhaust system, steering, drive-shaft, clutch coupling device axle, and so forth.

The importance of constantly checking these items to prevent accidents is quite apparent.

Fundamentals Behind Engine Run-In

By E. L. Cline, Clayton Mfg. Co.

IMPROVED design and the technique of machining surfaces have made rapid strides in recent years to allow increasingly closer fits between moving parts with a resulting increase in engine life. Even with factory controlled production, however, it is impossible to hold sizes to an exact measurement. Plus or minus tolerances result in varying fits between moving parts. Surface finish differs due to tooling and technique. Both dictate the necessity for the running-in operation.

It is generally granted that factory consistency with reference to tolerances and variation of surface finish cannot be consistently duplicated in the repair field. Therefore, inasmuch as "run-in" is considered necessary to the production of new engines, it is of still greater importance to overhauled engines.

The procedure of sliding or rotating one finished part over another by revolving the engine with an external source of power or idling the engine will theoretically tend to smooth out the surfaces and even up the fits. This solves only a part of the problem. Internal temperatures influence the fit or clearance of moving parts. Spotted expansions and contradictions take place, increasing clearances in some instances and decreasing them in others. Such surface distortion causes localized tightness and scuffing or seizure is likely to occur.

The practical run-in procedure would contemplate sliding or rotating the moving parts of an engine over one another at the same time allowing the parts to assume the ultimate shape they will take in actual operation. The shapes of various engine parts will change not only with internal operating temperature but applied mechanical loads as well. Normal internal temperatures cannot be simulated by abnormally high water jacket and crankcase temperature. Loads cannot be duplicated by merely revolving the engine.

It follows, logically, that the engine must
(TURN TO PAGE 12, PLEASE)

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COMMERCIAL



Sure they cut seating costs— but that's just one reason I'm for them!

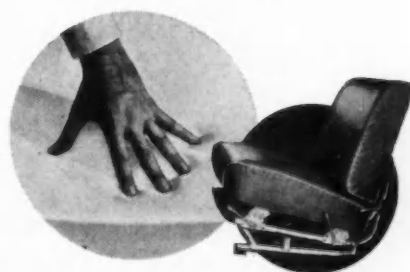
Don't get me wrong—I'm tickled with the savings you show since we specified full-depth AIRFOAM seats in all new trucks. 150,000 miles and more without a seat repair or replacement* is music to my ears.

But I *drove* a truck for years before I owned this fleet—and I know what a difference *drivers* can make in balance sheets!

Since our boys have been riding on AIRFOAM, they've been on the beam, on the job, with less time out—and driving rings around our competition!

Just never forget that whatever you do for a driver's aching back you're doing *double* for your aching bank roll!

* From actual on-the-job records. If you'd like the whole story on AIRFOAM savings in large and small fleets, contact Goodyear, Automotive Products Dept., Akron 16, Ohio.



AIRFOAM contains over half a MILLION air cushions to each cubic inch! That's why AIRFOAM cushioned seats "breathe" with every motion—stay cool and fresh and buoyantly comfortable for the life of the truck!

Airfoam MADE ONLY BY **GOOD YEAR**
THE WORLD'S FINEST CUSHIONING

Airfoam—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Introducing **HYDRO-TRAC**



new 3rd axle that gives **DUAL-DRIVE DIVIDENDS** WITH **SINGLE-AXLE ECONOMY!**

Truckstell Hydro-Trac gives you 3 trucks in 1...

- 50-50 axle load distribution for greatest payloads
- 80-20 axle load distribution for maximum traction
- Trailing axle up for single-axle truck economy ... all in one low-cost, easy-to-operate unit.

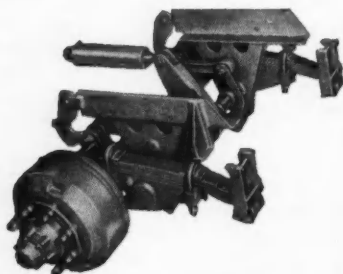
Here's how Hydro-Trac works. From its normal 50-50 axle load distribution, weight can be shifted hydraulically by cab-controlled pump which transfers up to 60% of the trailing axle's load to the driving axle ... supplying up to 80% of a dual-axle drive's traction on ice, snow or muddy roads.

When truck is empty, Hydro-Trac's axle can be lifted off the road, saving tires and gas, providing easier steering and up to 20% shorter turning.

Hydro-Trac weighs much less than a dual-axle drive of equal capacity. This savings means greater payloads. In addition, its proven 4-point suspension cushions the ride, maintains axle alignment and perfect tracking for longer tire life.

Put Hydro-Trac to work on your new or used trucks now. Write today for full information and the name of your nearest Truckstell Distributor.

Hydro-Trac comes completely assembled with matching capacity tubular axle, hydraulic or air brakes, hydraulic pump and cab controls.



Truckstell

MANUFACTURING COMPANY

Union Commerce Building • Cleveland 14, Ohio

Makers of famous Truckstell Dual-Axle Drives, auxiliaries and other types of special truck equipment.



At Your Service

Continued from Page 10

be operated under its own power, beginning with slow speeds and low power output, gradually increasing to higher speeds and greater power outputs. Water and crankcase temperature must be maintained at normal levels, but the internal temperatures will vary with the speed and power output of the engine so that the tight or high spots are gradually worn off and polished.

While the desirability of engine run-in after service is mutually endorsed by most all types of engine manufacturers, they differ in their opinions as to the specific run-in procedure to be followed. It is believed that these differences are due largely to the difference in sizes of engines, and more particularly the individual engineer's opinion on the matter, rather than from any mysterious mechanical advantages of one procedure over another. Nevertheless, as long as there are differences of opinion among engine manufacturers, it is the policy of this company to refrain from making specific procedure recommendations. It is suggested the engine manufacturer be requested to recommend your run-in procedure.

Usually a schedule can be worked out to suit the variety of engines in any one property. For shop convenience the specific rpm and horsepower loads, throttle opening or manifold vacuum readings should be set up as well as the time desired for each period.

A recent survey revealed that operators run-in schedule varied from 2 to 24 hours, but the majority favor 5 to 8 hours. This difference in time is understandable since the tightness, engine size, and the total work performed on the engine will influence the necessary duration of the run-in cycle. The difference in tightness of the engines is something that cannot be too well controlled within economic limits. Suffice to say that an engine is usually not too tight if it can be started with its starter. It is well to equip the engine with a thermometer to measure crankcase oil temperatures and engine water jacket outlet temperatures. If the engine manufacturer fails to recommend a specific schedule set up a middle course schedule altering time as dictated by engine condition.

After completing any one of the run-in periods, and as the next period is started, if temperatures of oil and/or water increase rapidly the engine is too tight to digest this succeeding period. If this is observed the proceeding period.

(TURN TO PAGE 14, PLEASE)

Gi
bu

This new Lee need never be market. It's a and backward mileage than matched up o

In most tire traction, but th on both coun the Lee Cleat- than on 100 between cleat cool running. groove gives a

Other featu special-form resistance; the separation of sible; the use greater carcass sturdy basic o

Visit your m Lee Cleat-Ri folder telling



The New

LEE

Super DeLuxe

CLEAT-RIB

Truck Tire

**Gives you the plus of EXTRA TRACTION in a tire
built to deliver up to 45% MORE HIGHWAY MILES**

This new Lee tire was specially designed to fill a definite need never before satisfied by any truck tire on the market. It's an extra-tread tire with excellent forward and backward traction. It will deliver up to 45% more mileage than a 100 level highway tire. And it can be matched up on duals with any standard highway tire.

In most tires, you have to sacrifice either mileage or traction, but the Lee Super DeLuxe Cleat-Rib scores high on both counts. There are good reasons for this. One is the Lee Cleat-Rib tread, which is nearly half again thicker than on 100 level highway tires. Its deep cut design between cleats and its double radius contour keep it cool running. There is no risk of tread cracking. Center groove gives added protection against side slippage.

Other features that make this tire outstanding are the special-formula rubber for maximum chip and tear resistance; the exclusive Lee Flexlok process that makes separation of the high-tenacity cords practically impossible; the use of Lubri-Cushions between the plies for greater carcass strength and less internal friction; and the sturdy basic construction you find in all Lee tires.

Visit your nearby Lee Truck Tire dealer and see the new Lee Cleat-Rib. Or send the coupon for the illustrated folder telling the full story.



INTERCHANGEABLE. The Lee Cleat-Rib has the same overall diameter as 100 level highway tires. Can be interchanged or paired up with regular tread tires on dual wheel drives. The addition of chains on the regular tires provides supertraction if needed.



LEE RUBBER & TIRE CORPORATION
Conshohocken, Pa.

2E

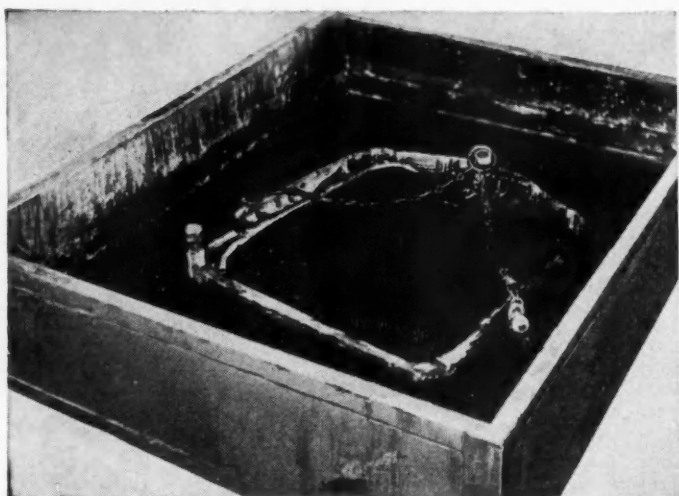
Please send me your illustrated folder describing the new Lee Cleat-Rib truck tire.

Company _____

My name _____

Street _____

City _____ Zone _____ State _____



Midwestern shop finds Oakite Stripper R-6 ideal for declogging radiators

New material declogs cores completely within 30 minutes...cuts man-hours 25% in removing paint!

OLDER radiators coming in for reconditioning are clogged with sludge and scale. New ones have paint that's hard to strip. Sometimes they're fouled with fluids which have leaked into the cooling system.

Field-tested coast to coast for over a year, Oakite Stripper R-6 seemed made to order for such jobs. Calling at this Midwestern motor company, the Oakite Technical Service Man suggested a trial of Stripper R-6. Results again confirmed other field reports received during the year: It declogs radiators with 1/2 hour's boiling. It strips paint 3 to 4 times faster. It saves 25% on man-hours by eliminating excessive brushing of cores. It cleans out radiator tanks till they shine. It has no ill effect on soldering.

No wonder this radiator expert stated that "...after searching for the ideal radiator material for many years. I've found it at last in Stripper R-6".

HERE'S HELP FOR YOU, TOO!

How to do all the cleaning, descaling, derusting and other jobs in and around garages and shops is covered in this free Oakite Booklet No. 4401. Send for your copy today. Oakite Products, Inc., 26D Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada



At Your Service

Continued from Page 14

riod should be resorted to for another 20 to 45 minutes and then the higher period tried again. This can be repeated until normal temperatures are maintained with each succeeding period of run-in.

Rocker Arm Lubrication—'52 Ford

WHENEVER a complaint of spark plug fouling due to excess rocker arm lubrication is encountered on 279 cu in. or 317 cu in. engines, it will be necessary to install intake valve lower seals EAD-66571-A on all intake valves in addition to the present upper seals.

In some cases, the rocker shaft overflow tube drain hole in the cylinder head has not been drilled far enough to intersect the oil drain hole at the cylinder head bolt hole. This creates a restriction which causes high pressure in the shaft resulting in excess oil "throw-off." Any oil drain restriction at this point may be eliminated by removing the tube from the drain hole and bending the tube to direct its flow into the nearest push rod hole. The line should be bent so the lower end will press slightly against the side of the push rod hole to prevent vibration of the line when the engine is operating.

The intake valve lower seals can be installed without removing the cylinder heads. A special tool is used to compress the valve spring so the valve locks, sleeve, and spring retainer can be removed. The tool will soon be available from the Ford Division Parts and Accessories Dept.

In addition, it will be necessary to make an air line fitting to apply pressure to the cylinder in order to keep the intake valves in the closed position.

The fitting can be made by removing the insulator from a spark plug and welding a suitable fitting into the shell portion of the plug to make connection to the shop air supply.

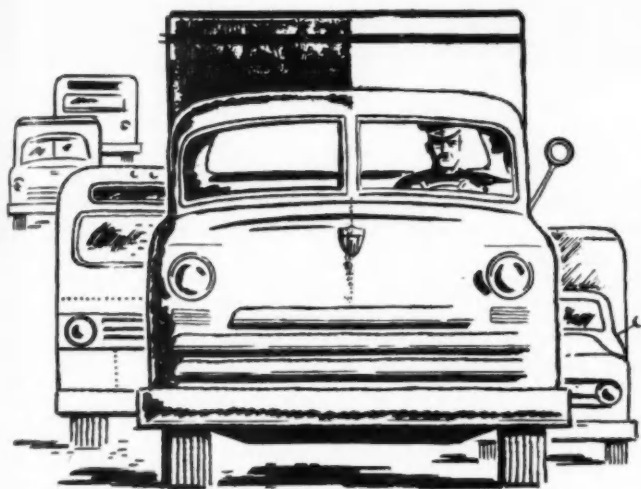
Crankshaft Dowel Pin Change

A RECENT change has been made in the Silver Diamond engine crankshaft, in that provisions have been made for one dowel pin rather than the three dowel pins previously used.

The new crankshaft will interchange with the old crankshaft and only the new will be furnished after the old stock is exhausted. Production flywheels will incorporate only one dowel pin hole. However, all service flywheels will incorporate the three dowel pin holes.



FLEET H



UP FRONT WITH ccj

FLEET HIGHLIGHTS OF THE MONTH AS REPORTED BY COMMERCIAL CAR JOURNAL

MR. EXECUTIVE here is a brand new feature designed especially for you. In it, we are endeavoring to produce a quick, concise word picture of events most significant to the motor fleet field—past, present and future. From month to month, you will find highlights from the nation at large as well as special reports from Washington and Detroit, charts or notations of important business trends, and a review of key features in each issue. We hope you will like it.

RECIPROCITY TALKS by the governors, scheduled for late last month at their Washington meeting, were reported postponed. Next chance will be at the regular Council of State Governors meeting in New York in July. This gives fleet operators an opportunity to work out reasonable proposals in line with the nine-point program adopted by ATA's Executive Committee (April issue, page 64). In the words of Georgia Public Service Commissioner Walter R. McDonald, prime mover in the ten-state southern reciprocity agreement, "... you haven't got much time. You have got to get your chief executives educated. You have got to say what you will pay as a fair share." (Some timely comments begin on page 71, this issue.)

HIGHWAY AID to the tune of \$966 million a year for the next two fiscal years passed Congress last month, will probably become law. If so, it will represent a 68 per cent increase over the present annual appropriation of \$575 million. Federal-aid primary systems get \$315 million, secondary—\$210 million, urban—\$175 million, with another \$175 million for the interstate system. Balance is for federally built roads. The 50-50 formula for state matching funds remains the same except for the interstate system, apportioned at 60 per cent federal and 40 per cent state funds.

PIGGY-BACK will be debated before the ICC on June 28. Docketed as proceeding No. 31375, the deadline for filing briefs on the 12 questions to be considered (see page 174, this issue) is June 18. Added impetus was given to the matter in announcement by the New York Central RR of plans to build terminals in Chicago, Cleveland, Boston, New York and Detroit at a cost of \$1 million each. To be operated by Rail Trailer Co. using General Motors' especially developed two-trailer flatcars, the railroad plans to haul common carrier trailers between those points. Said the announcement, service will start "in a few months." Estimate was that 400 cars would be needed initially.

DETROIT DISPATCH

TIRE FIRE TESTS CONDUCTED at the Army's Desert Test Center by ATA are now completed with the committee presently working on its report. Three-axle tractors with tandem-axle semi-trailers loaded to 78,000 lb GCW were used for tests on flat and soft tires up to 48 mph. Checks were made on tire condition, dragging brakes, type of tire, position on the vehicle, and the effects of speed, load, wheel type and tire size.

SALE OF REO TO Henney Motor Co. has been agreed to by Reo directors, still needs stockholder approval. Speculation was that Henney—hearse and Packard special body maker—would either operate Reo as a division or groom it for sale or merger.

REO'S V-8 WAS presumably included in the deal. Announcement of this en-

gine is expected this Fall—in connection with Reo's 50th anniversary. Output is reported to be in the 1/2 hp per cu in. displacement bracket.

TIRE DISCOUNTS TO fleet purchasers could be affected if the courts uphold a Federal Trade Commission order limiting maximum discounts to 20,000 lb lots. Tire companies are fighting the order, say it would result in a price monopoly for the few buyers who could purchase in larger quantities.

PARTS MERCHANDISING WILL be scrutinized as a part of the Justice Dept. probe kicked off by the Ford-General Motors sales race. It will be recalled that the latter drew Congressional fire last month. Attorney General Brownell has announced his anti-trust division probe of "various aspects" of the auto-

motive industry of parts production.

GAS TURBINE forward when 120 hp unit is in fuel efficiency issue). Dodge engine before.

TRACTOR-TRUCK maximum inter-load soon will approval. Loading gear were considered and TTMA re-

PLASTIC BODY vice will be developed by experts.

WASHINGTON RUNAROUND

AUTOMOTIVE EXCISE TAXES WILL continue at present rates until 1955. Only reduction affecting highway users made in the finally enacted law was from 15 to 10 per cent on transportation of passengers. The three per cent tax on freight continues.

EX PARTE MC-46 LOOKS like another chapter in the continuing effort to obtain a cleaner split in common, contract and private carrier definition and function. The ICC proceeding was instituted by ATA's Contract Carrier Conference, seeks amendment to the IC Act to clarify contract carrier status. Both ATA's Private Carrier Conference and the Private Truck Council of America have alerted their members to the possibility that the changes asked could affect private truck operation.

COMMON CARRIER INTEREST WAS highlighted in a recent speech by IC Commissioner Anthony F. Arpaia at the Rail Transportation Institute of American University. He said that rail, highway and water common carriers must bear the real burden of our nation's transportation, referred to private and contract carriers as fringe operators.

He expressed opinion that regulation should be based on strength and soundness of all forms of common carrier transportation. Main objection of the Commissioner to the present system is that it permits shippers to haul high-rated freight themselves at low cost, turnover to common carriers low-rated freight—thus depriving common carriers of revenues needed for sound, economic operation.

PIGGY-BACK OPERATION ALSO came in for its share of attention. Commissioner Arpaia recommended that rail and highway common carriers get together to promote the service. However, both private carrier conferences have taken exception to the view that it should be available only to common carriers, say that private truckers also should have the right.

STATE BARRIERS TO interstate highway commerce—taxes, sizes and weights, reciprocity—could have three spotlights on them. Section 10 of the just-passed Federal-Aid bill authorizes investigation of "all phases" of highway construction, is so worded—according to experts—as to require size

and weight all are made investigation proposed in tion (March building up still needed taxes to assume likely to pre recommend Research A Dept. of Ag consider the truck transportation products.

ICC LEASES ULED for long postponed until large number of cars called for v-

ICC'S PROPOSAL will not go into 1955. Char amounts (likely as a filed by in- ments must writing by

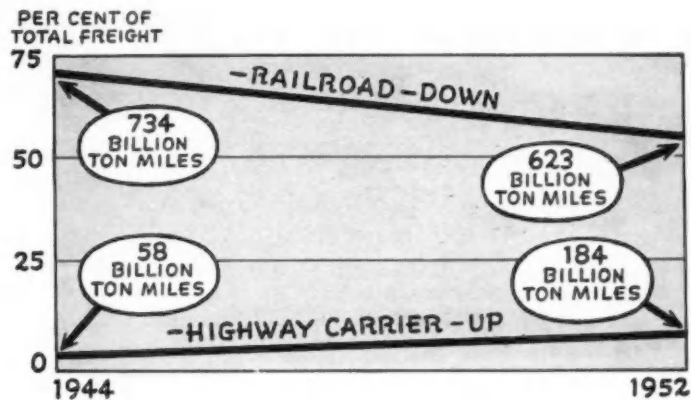
BUSINESS TRENDS

motive industry will include operations of parts producers and distributors.

GAS TURBINE PROGRESS MOVED forward when Chrysler announced its 120 hp unit using a regenerator to attain fuel efficiency (see page 110, this issue). Dodge is expected to adapt the engine before long for truck studies.

TRACTOR-TRAILER DIMENSIONS FOR maximum interchangeability and payload soon will be submitted to ATA for approval. Location of such items as landing gear, fifth wheel, kingpin, etc., were considered in the study by AMA and TTMA representatives

PLASTIC BODY FOR United Parcel Service will be under test soon. It was developed by designer Walter Teague's experts.



GENERALLY UP is the trend in the highway carriers' share of total freight despite current rail rate cuts, according to ICC's Bureau of Transport Economics. It moved from 5.3 per cent in 1944 to 16.2 per cent in 1952. Railroads' share has dropped in the same period from 71.2 per cent to 54.9 per cent.

IN THIS ISSUE . . .

MANAGEMENT Improved axle weighing techniques can eliminate many axle overloading bugaboos. Built-in electronic scales guide loading practices. Here are some valuable tips . . . Page 68.

ROADS This 8-page insert, Trucks and the Roads They Use, will provide interesting background for those who deal with legislatures, highway engineers, various associations, the public. Study pages 71 to 78.

MAINTENANCE It's "top-notch" at Consolidated, and here is a series of pictures to prove it. Visit this progressive maintenance shop with us, page 90.

VEHICLE CONTROL Dispatching appears to be fun at Ringsby—and vehicles are kept on the beam through a novel control tower installation. Page 82.

NEW EQUIPMENT It's new and it's designed to save you maintenance dollars. Look over the articles on the brake adjuster, page 108; the air jacks, page 114; the third axle, page 172; and others.

INDUSTRY NEWS A complete round-up of the month's highlights starts on page 100. Don't miss it.

and weight research if any studies at all are made. Second possibility is investigation of third structure taxes as proposed in HR 407, the Ayres Resolution (March issue, page 64). Support is building up for its passage but more is still needed from those affected by such taxes to assure early action. Only study likely to proceed immediately is that recommended by the Transportation Research Advisory Committee of the Dept. of Agriculture. This study would consider the effect of state barriers on truck transportation cost of agricultural products.

ICC LEASING HEARINGS SCHEDULED for last month have been postponed until June 14. Because of the large number of witnesses who indicated a desire to appear, the ICC order called for written testimony.

ICC'S PROPOSED FEES FOR services will not go into effect until July 1, 1955. Chances for modification in the amounts (April issue, page 60) seem likely as a result of objections being filed by interested parties. Such arguments must be filed with the ICC in writing by May 15.

The Road Ahead



LONG RANGE FORECAST BY ATA spokesmen for the trucking industry estimates more than twice the present 9 million vehicles within 20 years. They also predict 14 million employment and a \$47 billion payroll for the industry before 1975.

SOME FOR-HIRE CARRIERS ARE losing freight to the railroads, according to a spot check by the Wall Street Journal made the middle of last month. Selective and general rate cuts by the rail carriers are blamed. Says the report, more rate cuts by the rails are coming.

TON-MILE TAX FIGHT IN New Jersey was going full blast at press time. Fight against the bill, A-380, introduced last month, is being lead by New Jersey Motor Truck Assn. and New Jersey Teamsters Joint Council. The state's Conference of AAA Automobile Clubs has withdrawn earlier support of the measure and the New Jersey Automobile Club is opposed to any new highway-use taxes until diversion of highway-user revenues is stopped.

STATE TRUCK ROADEOS SCHEDULED so far include Kansas—June 4-5, Michigan—Aug. 5-7 at the Lansing Capital airport, and Wisconsin—July 17-18 at Green Bay. Pennsylvania Motor Truck Assn. has sent members a special booklet detailing roadeo advantages.

HYDROGEN BOMB BLAST IN the Pacific will affect transportation plans for civil defense and defense production. Report is that flexible highway carriers will be called on to carry more of the load than under previous planning in the event of an emergency. One bomb blast could wipe out an entire city's rail network not just a sorting yard.

TOLL HIGHWAY EXPANSION IS moving ahead. Both Pennsylvania and New Jersey have sold bonds to finance connection between their respective arteries. Target date for completion is around July, 1956. New York has announced June 24 this year as date for opening of the first 110 miles of its Thruway on which it will collect tolls, from Verona to Rochester. A Commerce Dept. study shows 2000 miles of toll road in operation or under construction, estimates that another 8000 miles is suitable for development as pay-as-you-go road. Word of warning to toll road enthusiasts was contained in a report from the Pennsylvania Turnpike Commission. Truck tolls so far this year as compared to 1952 were down 14 per cent in January, 17 per cent in February and 20 per cent in March.

BUS FACTORY SALES IN January this year, latest data available, were 143 units higher than January, 1952. Truck registrations and factory sales, truck trailer shipments, and tire shipments and end-of-month inventory were all down compared to a year ago, as tabulated below:

| In thousands of units, except bus sales are in actual numbers | New Truck Registrations | | Truck Factory Sales—Domestic | | Truck Trailer Shipments | | Bus Factory Sales—Domestic | | Truck and Bus Tires | | | | | |
|---|-------------------------|----------|------------------------------|---------|-------------------------|----------|----------------------------|---------|-----------------------|----------|---------------------------|----------|---------------------------|--|
| | | | | | | | | | Replacement Shipments | | Original Equip. Shipments | | Inventory—End of February | |
| | Feb. | 2 Months | Jan. | 1 Month | Feb. | 2 Months | Jan. | 1 Month | Feb. | 2 Months | Feb. | 2 Months | | |
| 1954 | 60.8 | 121.5 | 83.6 | 83.6 | 4.2 | 8.9 | 361 | 361 | 556.1 | 1171.1 | 310.8 | 652.7 | 2876.8 | |
| 1953 | 68.6 | 141.2 | 97.9 | 97.9 | 5.9 | 11.6 | 218 | 218 | 734.7 | 1612.6 | 498.9 | 939.4 | 2994.5 | |

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White Model 302
Third Axle, 10:00



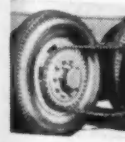
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Trailing Axles
Tandem-Axle T
or General Air

COMMERCIAL

White Model 3022 equipped with Power Steering, Trucktor Model HLR Third Axle, 10:00 x 20 tires, 1 1/2 x 6" mechanical air brakes, 18' body.



Over-the-Road...

Trucktor 3rd Axles Pay More, Cost Less Than Dual Drives

Carry More Payload

because they are lighter.

Make Better Time

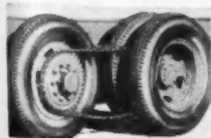
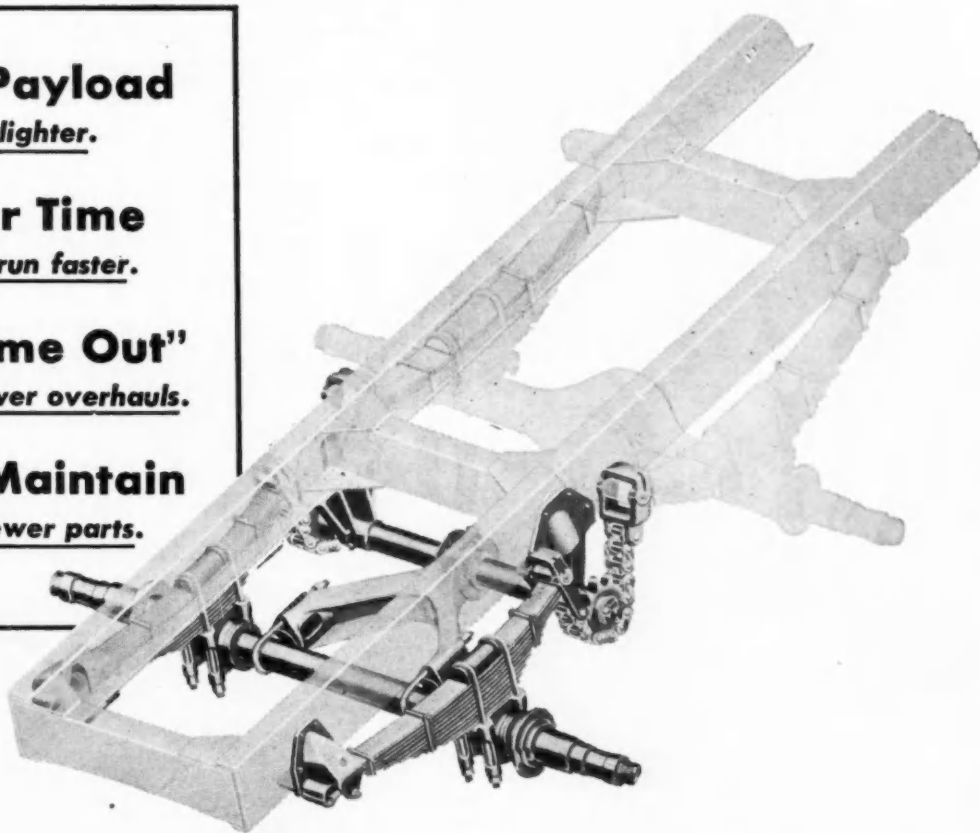
because they can be run faster.

Take Less "Time Out"

because they require fewer overhauls.

Cost Less to Maintain

because they have fewer parts.



Detachable Chain-and-Sprocket 4-Wheel Drive makes tire chains unnecessary. When extra traction is needed, chains are slipped over sprockets and pinned. Attached and detached quickly, simply, without removing wheels (in picture, wheel removed to show construction.)

Rubber-mounted Yoke tows the unit . . . keeps wheels aligned and on the ground . . . absorbs all brake reaction.

6-Point Frame Support protects frame . . . reduces side sway . . . supports frame behind the last axle.

Full-floating Springs, rubber-mounted at axles, provide easy ride . . . carry load only . . . take no brake reaction.

Chain-and-Sprocket Load Divider provides flexibility over bumps, holes . . . long service life.

Trailing Axles for 6-Wheel Conversions • Single and Tandem-Axle Trailer Assemblies with Steel Springs or General Air Springs.

For further information, call your Truck Dealer, Trucktor Distributor, or write direct.

THE TRUCKTOR CORPORATION, Route 22, Mountainside, N. J.

DATES and DOINGS

(See page 137 for Calendar of Fleet Training Courses)

MAY

- 10-14—Common Carrier Conference, American Trucking Assns., Board of Governors Meeting, Shoreham Hotel, Washington, D. C.
- 11-14—Council of Safety Supervisors and Equipment and Maintenance Conference, American Trucking Assns., Spring Meetings, Sinton Hotel, Cincinnati, Ohio.
- 16-18—Maryland Motor Truck Assn., Annual Convention, Lord Baltimore Hotel, Baltimore, Md.
- 17-20—National Committee on Accounting, American Trucking Assns., Nicollet Hotel, Minneapolis, Minn.
- 18-20—American Transit Assn., Region V Conference, Hotel Leamington, Minneapolis, Minn.
- 20—Rhode Island Truck Owners Assn., Annual Meeting, Narragansett Hotel, Providence, R. I.
- 20-23—Georgia Motor Trucking Assn., Annual Meeting, Bon Air Hotel, Augusta, Ga.
- 20-23—New England Regional Automotive Show, Mechanics Bldg., Boston, Mass.
- 23-26—Washington Motor Truck Assn., Annual Convention, Harrison Hot Springs, British Columbia.
- 24-26—America Transit Assn., Region VII Conference, Washington Hotel, Seattle, Wash.
- 24-26—Automotive Engine Rebuilders Assn., Annual Convention, Statler Hotel, Buffalo, N. Y.
- 24-27—Terminal Operations Council, American Trucking Assn., Annual Meeting, Sheraton Hotel, St. Louis, Mo.

JUNE

- 3-5—Midwest Transit Assn., Annual Meeting, Hotel Lassen, Wichita, Kan.
- 4-5—Kansas Motor Carriers Assn., Rodeo and Spring Conference, Baker Hotel, Hutchinson, Kan.
- 6-11—Society of Automotive Engineers, Summer Meeting, The Ambassador and Ritz-Carlton Hotels, Atlantic City, N. J.
- 7—Assn. of Transit Equipment Men, Middle Atlantic States, Du Pont Hotel, Wilmington, Del.
- 10-11—Associated Motor Carriers of South Dakota, Annual Convention, Hotel Alex Johnson, Rapid City, S. D.
- 10-12—Texas Motor Transportation Assn., Annual Convention, Adolphus Hotel, Dallas, Texas.
- 18-19—Pennsylvania Motor Truck Assn., Annual Meeting, Roosevelt Hotel, Pittsburgh, Pa.
- 21-24—Fifth Annual Forum of Trucking Industrial Relations, Hotel Adolphus, Dallas, Texas.
- 22-25—National Freight Claim Council, American Trucking Assns., Hotel Statler, St. Louis, Mo.
- 24-27—National Truck, Trailer and Equipment Show, Pan-Pacific Auditorium, Los Angeles, Cal.

JULY

- 9-10—South Carolina Motor Truck Assn., Annual Convention, Ocean Forest Hotel, Myrtle Beach, S. C.
- 17-18—Wisconsin Truckers Safety Council, Annual Truck Rodeo, Green Bay, Wis.
- 22-24—Truck-Trailer Manufacturers Assn., Summer Meeting, Edgewater Beach Hotel, Chicago, Ill.

AUGUST

- 1-3—Movers' Conference of America, American Trucking Assns., Annual Assembly, Hotel Statler, Boston, Mass.
- 5-7—Michigan Trucking Assn., Annual Truck Rodeo, Lansing Capital Airport, Lansing, Mich.
- 16-18—Society of Automotive Engineers, International West Coast Meeting, Hotel Statler, Los Angeles, Cal.

SEPTEMBER

- 8-11—National Truck Rodeo, American Trucking Assns., International Amphitheater, Chicago, Ill.
- 27-30—American Transit Assn., Annual Meeting, William Penn Hotel, Pittsburgh, Pa.

OCTOBER

- 25-29—American Trucking Assns., Annual Convention, Waldorf-Astoria Hotel, New York, N. Y.

SNYDER SAFETY TANKS



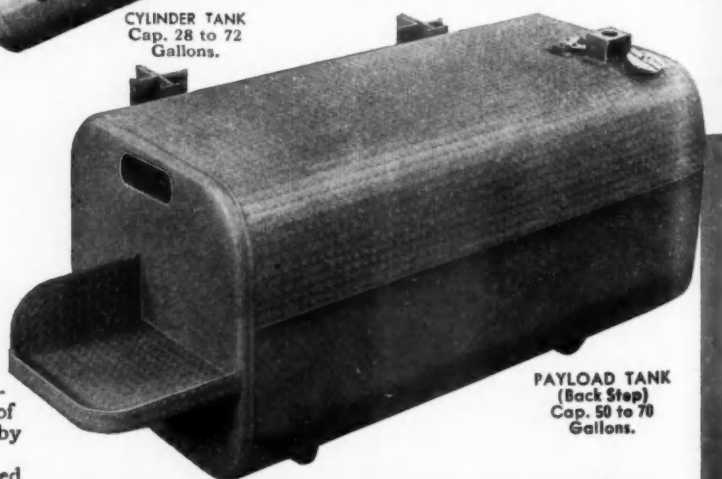
TOOL BOX UNIT
Cap. 74 to 144
Gallons



SADDLE TANK
Cap. 98 to 145
Gallons.



CYLINDER TANK
Cap. 28 to 72
Gallons.



PAYLOAD TANK
(Back Step)
Cap. 50 to 70
Gallons.

... are designed to bring you the highest degree of efficiency and are engineered to insure the longest possible life. Fabricated of pickled steel with electrically lap welded seams; all Snyder Safety tanks provide the truck operator and fleet owner with the highest S.O.T.R.* factor.

Built of 12 gauge steel sides with 9 gauge flange welded heads, Snyder Safety Tanks offer sturdy resistance to impact.

Snyder's cast brass filler cap with fusible plugs; non-siphoning baffle; female threaded filler neck—are a few of the features that make Snyder the preferred tank by fleet owners who know!

All Snyder Safety Tanks are manufactured and tested to conform to the specifications of the Bureau of Motor Carriers of the I.C.C. *Safety On The Road

Underwriters Laboratories, Inc.
INSPECTED

SNYDER TANK CORP.

P. O. Box 14, Buffalo 5, N. Y. • P. O. Box 2390, Birmingham 1, Ala.

FOR POWER

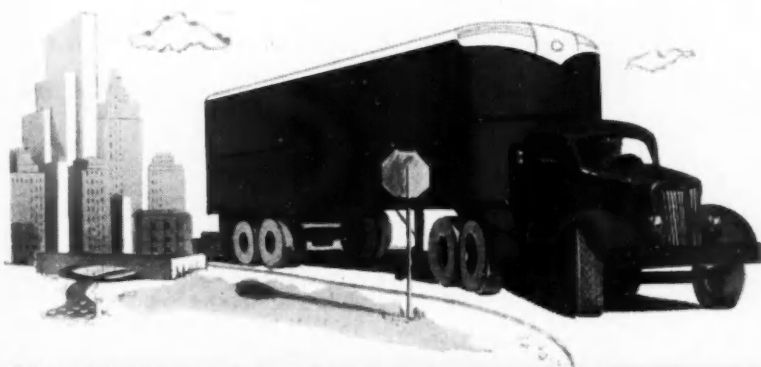
CHROME CONTROL

LEAK-PROOF

REG. U. S. PAT. OFF.

PISTON RINGS

This set will outperform
any other piston ring set in
the "hard-to-hold" jobs regardless
of kind, design or price.



FOR PROFIT

To make a profit you've got to keep your trucks
on the road and out of the repair shop.
That calls for *dependable* McQuay-Norris
parts. They're built to *last*!

McQUAY-NORRIS MANUFACTURING COMPANY



ST. LOUIS 10, MO.



Laugh it off!

STENO LOU: "SO YOU AND SAMMIE ARE MARRIED. I THOUGHT IT WAS GOING TO BE JUST A FLIRTATION."

STENO SUE: "SO DID SAMMIE."

ccj

The fleet radiator repairman, noted as a great lover-boy, was out driving with a glamorous brownette on a beautiful moonlight night. Reaching an appropriate setting, he pulled his car off the road and shortly sounds of a struggle came from within.

Brownette: "Unhand me, you viper. Where is your chivalry?"

Radiator Repairman: "Gee, Babe. It didn't have enough power an' operatin' room, so I traded it in on dis Buick."

ccj

Tank Truck Driver: "That old coffee head who drives that reefer van for Proudfoot Produce went blind from drinking coffee."

Furniture Van Driver: "How could that happen?"

Tank Truck Driver: "The dope left the spoon in the cup."

ccj

The young Safety Supervisor and his pretty blonde girl friend sat in his parked car.

Safety Supervisor: "Darling, I'm groping for words to describe my feelings."

Blonde Sweetie: "Well, you won't find them where you're groping."

ccj

City Dispatcher: "Did you have any trouble getting home from the party last night?"

City Delivery Driver: "No trouble at all, except that just as I was turning down my street, some fool stepped on my fingers."

ccj

IT'S A CASE OF LOVE AT SECOND SIGHT. THE FIRST TIME HE SAW HER HE DIDN'T KNOW SHE HAD MONEY.

Rich Suitor: "I—er—suppose you are aware that I've been making advances to your daughter."

Hardluck Greasemonkey: (extending hand) "Yes, put it there, son. And now, how about her poor old father?"

ccj

Carburetor Specialist: "I hear your daughter won a prize at business college for dictation."

Ignition Specialist: "Yeah! The kid gets more like her old lady every day."

ccj

Parts Clerk: "Who is that goofy-looking dame?"

Air Brake Specialist: "She's that new heiress that got a million from her dead uncle. Ain't she awful?"

Parts Clerk: "Quit speaking so disrespectfully of the girl I'm gonna love."

ccj

TRUCK MECHANIC: "DO YOU NECK, SISTER?"

DANCE HALL HOSTESS: "THAT'S MY BUSINESS, GREASEMONKEY!"

TRUCK MECHANIC: "OH, A PROFESSIONAL, HUH?"

"Cici Jay"



FORK LIFT OPERATOR: "DO YOU KNOW WHY GIRLS WALK HOME?"

BLONDIE: "NO, WHY?"

FORK LIFT OPERATOR: "LET'S GO FOR A RIDE."

ccj

Maintenance Superintendent: "Jim, I just can't understand you showing up for work with a hangover and bleary eyes. What happened over the week-end?"

Shop Foreman: "I was fishing through the ice!"

Maintenance Supt.: "Fishing for what?"

Shop Foreman: "Maraschino cherries."

ccj

Newlywed Repairman: "Did you make these biscuits with your own little hands?"

Cute Bride: "Why, yes, darling."

Newlywed Repairman: "Well, who in hell helped you lift them out of the stove?"

ccj

Cute Patootie: "I'm a cigarette girl."

Road Truck Driver: "Are you a Camel or a Chesterfield?"

Cute Patootie: "What do you mean?"

Road Truck Driver: "Do you walk a mile, or do you satisfy?"

ccj

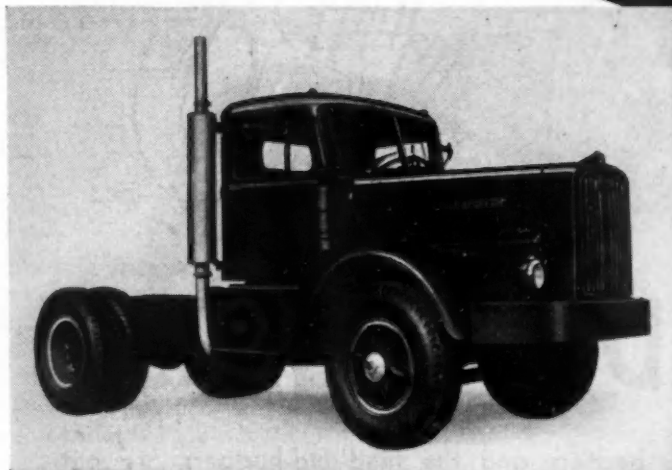
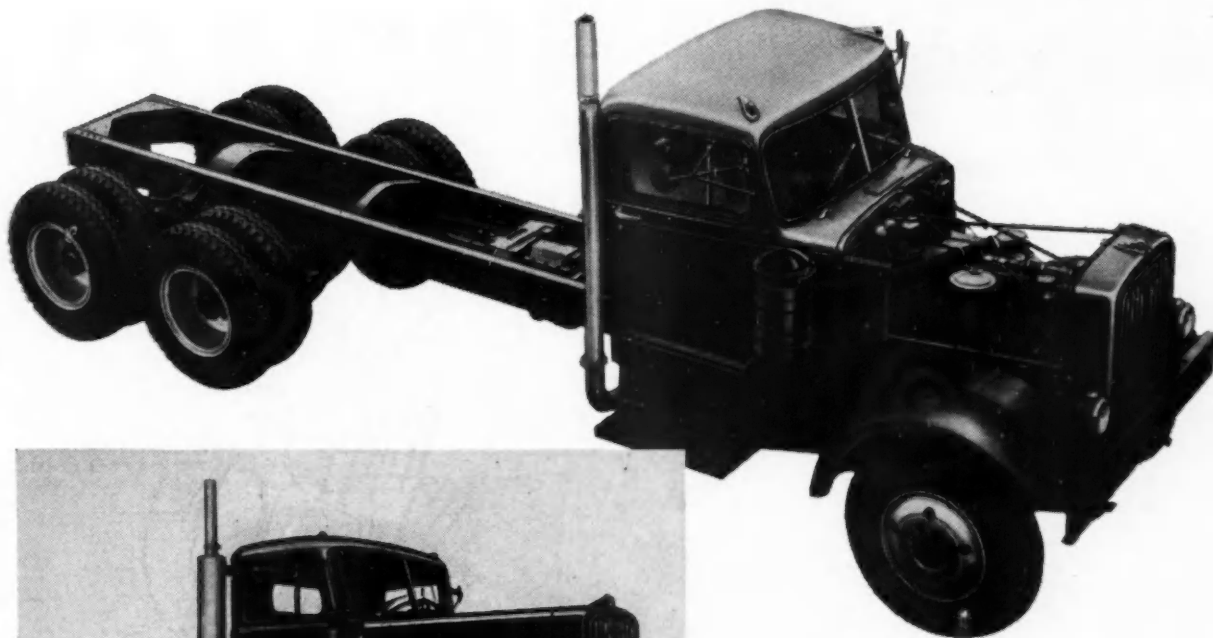
Rambeau had been hired by a deep south trucking firm as a rate clerk trainee. When he developed in time into a capable traffic rate clerk, he was transferred to one of the company's northern terminals. On his second date with a particularly sophisticated Yankee brunette he waxed romantic and sad: "Honey, would yo' mind if ah kissed yo' all?"

"Aren't my lips enough?" snapped the Yankee glamor-doll.

Resume Work

COMMERCIAL CAR JOURNAL, May, 1954

Here's why Autocar-Diesels outperform and outlast any other diesels on the market



▲ The Autocar-Diesel lightweight 6-wheeler chassis—geared and powered for your payloads.

▲ The Autocar-Diesel standard tractor—the finest piece of hauling equipment on the highway.

The reason is simple enough. The Autocar-Diesel is a *quality* truck—a *fully balanced* truck. The enormous power of the engine is balanced by the strength of the rear end. The frame, transmission, springs, etc., are selected for the strength of the complete vehicle and the job for which it is intended. This sort of custom-building and quality engineering result in trucks and tractors that outperform competitive units—they are dependable under the toughest conditions, they last for years and are amazingly inexpensive to maintain.

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Autocar Trucks are sold and serviced throughout the world

Send for the new Autocar-Diesel folder, just off the press. It tells all about the standard Autocar-Diesel, and the new lightweight Autocar-Diesel with aluminum components.

Autocar Division of The White Motor Company
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Please send me the new Autocar-Diesel folder.

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Firm name _____

Address _____

No. of trucks in fleet _____

Type of operation _____

3E

CC BULLETIN BOARD

DRIVERS • MECHANICS • SAFETY MEN *Please Note!*



HIND END HUGGERS

The tailgaters and the bumper-beaters and the hind-end-huggers are out again. Seems like they sprout in the springtime like wild onions. Have you been caught in their squeeze play recently?

What species of driver is it who courts this hellish practice of following so closely that he can't possibly keep his rig out of an accident in an emergency? Who told him he could save time that way? Why hasn't he been enlightened of the facts of life?

Most drivers recognize the fact that tailgating is deadly and that in many states it is a definite violation of the law. They know that the motoring public doesn't like to play leapfrog with a chain of moving trucks, so they drive right.

It's those few who take chances that raise hell with the accident figures. It's the eager-beaver boys who flagrantly abuse these common sense rules of the road. Good drivers know that you should leave not less than 500 feet between vehicles so that an overtaking vehicle can pass safely.

Don't rush the vehicle ahead. He's apt to hit the brakes before you realize it. And if he does, you can't stop as quickly simply because you won't have as much time as he does. *You see he has already used up the reaction time that you will need if you are to keep out of his rear.*

Observe a safe distance when tailing the vehicle ahead—and be especially cautious when the bloke following you doesn't. For without a safe margin of road, somebody sure will get it in the end . . .

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How to haul BIGGER LOADS at lower cost

INTERNATIONAL Model RDC-405 cab-over-engine ROADLINER® with sleeper cab. GCW rating, 68,000 lbs.



There's one sure way to cut the cost of hauling the biggest highway loads the weight restrictions will allow, and that's with INTERNATIONAL extra-heavy-duty ROADLINERS.

INTERNATIONAL ROADLINERS are designed and built for heaviest hauling . . . with all components engineered to provide dependable round-the-clock service, day after day.

What's more — INTERNATIONAL extra-heavy-duty ROADLINERS are tailored exactly to the requirements of each specific highway operation. There are 4-wheel types and there are 6-wheel models with newly-announced, advanced INTERNATIONAL bogie . . . all available with choice of engines, transmissions and other components for exact job specialization.

Many of the nation's best known long distance haulers standardize on INTERNATIONAL ROADLINERS. For cost records show that INTERNATIONALS stand up best. And cost-conscious buyers have made INTERNATIONAL the heavy-duty sales leader for 22 straight years.

Get full facts from your INTERNATIONAL Dealer or Branch. Time payments arranged.

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12 Extra-heavy-duty ROADLINERS, including conventional and cab-over-engine types. GCW rating, 68,000 to 76,800 lbs.

The right power at the right operating cost. Choice of gasoline, LPG, or diesel engines, up to 356 hp.

Unusual comfort. Famous Comfo-Vision cab with curved one-piece Sweepsight windshield. Green-tinted, non-glare safety glass available. Many other exclusive features for maximum driver efficiency.

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Service when and where you need it. World's largest exclusive truck service organization, with branches in principal cities — dealers everywhere.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

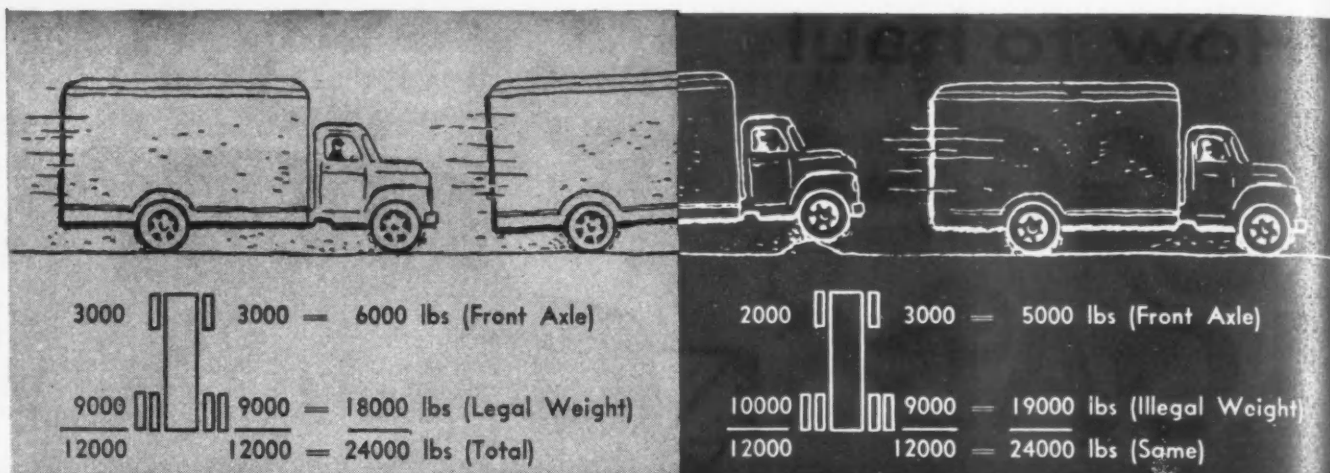
International Harvester Builds **McCORMICK®** Farm Equipment and **FARMALL®** Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

Better roads mean a better America



INTERNATIONAL TRUCKS

"Standard of the Highway"



Axle Weighing BUGABOOS..



New techniques with electronic scales show fallacies of present methods of axle weighing, point-up effect of load shift, "couples" and torsion

IMPROPER weighing techniques by state highway patrols are costing fleet operators thousands of dollars in fines each year. At the same time, incidents of "overloading" are being used as damaging "proof" that trucks are responsible for the present inadequate state of the nation's highway system.

Careful loading of vehicles at their terminals does not always assure properly loaded axles later out on the highway. There are numerous cases in which vehicles have been carefully loaded at point of origin, weighed out over tested scales and then when weighed a hundred miles later are found to be overweight on an axle.

The outraged truck driver in such cases protests his innocence and shows his earlier scale tickets to prove his point. The weighing official knows that his scales have recently been checked. This is usually a matter of an axle weight violation rather than of exceeding the gross weight limit.

Some of these cases have been taken to court. Inevitably the findings are in favor of the enforcement officials. The courts take the attitude that vehicles weighed on state scales and found to be overweight are in violation of the law, even though the same vehicle with the same load may have been weighed on another state scale a brief time before and found to be legally loaded.

Under these conditions, conscientious truck operators are faced with a difficult problem. Loading of vehicles considerably below legal limits can not reasonably be expected under present day conditions. On the other hand, if they load close to legal allowable axle weights, they face possible fines and delays because of differences in the readings in their scales and those of enforcement officials.

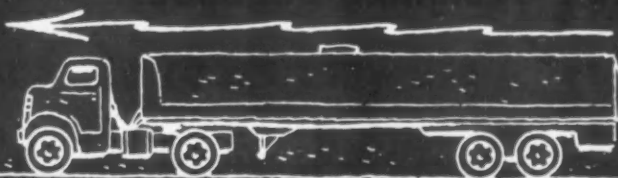
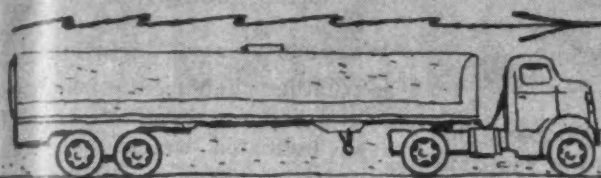
Front Axle
Drive Axle
Front Tandem
Rear Tandem

Electronic C

The recent built-in electronic scale has possible solutions resulting from which began the development for University of Kansas, the rugged electronic individual axle load device to observe the shifting at

In development "Cells," Contractors discover facts. Tests a single axle single axle this built-in Weight-sensors were placed spring suspension trailer and fifth wheel kingpin. T out sides, v tity of 55 with concrete contributed to

TANKER (Weighed on Beam Balance Installation)



| | Left-Hand | Right-Hand |
|-------------------|------------|------------|
| Front Axle | 4,070 lbs | 3,900 lbs |
| Drive Axle | 11,000 lbs | 7,190 lbs |
| Front Tandem Axle | 9,240 lbs | 9,000 lbs |
| Rear Tandem Axle | 8,170 lbs | 8,080 lbs |

| | Left-Hand | Right-Hand |
|-------------------|-----------|------------|
| Front Axle | 2,370 lbs | 2,460 lbs |
| Drive Axle | 8,130 lbs | 8,720 lbs |
| Front Tandem Axle | 8,470 lbs | 8,320 lbs |
| Rear Tandem Axle | 8,120 lbs | 8,640 lbs |

.....HOW TO LICK THEM

Electronic Cell Tells Story

The recent development of a built-in electronic axle weighing scale has opened the door to possible solution of this problem. Resulting from a research program which began in 1950 at the Foundation for Industrial Research, University of Wichita, Wichita, Kans., the unit uses a small, rugged electronic cell which shows individual axle weights as well as the load on the kingpin. With this device it is now possible to observe the phenomenon causing shifting at wheel weights.

In developing its "Control Cells," Control Cells Corp. engineers discovered some surprising facts. Tests were conducted using a single axle semi-trailer and a single axle tractor equipped with this built-in weighing equipment. Weight-sensing electronic cells were placed on both dual wheel spring suspension points on the trailer and under either end of the fifth wheel shaft supporting the kingpin. The flatbed trailer, without sides, was loaded with a quantity of 55-gal steel drums filled with concrete, calculated and distributed to approach the 18,000-lb

Based on material especially prepared for
CCJ

By E. S. Safford,

President

Control Cells Corp., Wichita, Kan.

Above at left. Note axle loadings before and after the truck hits a bump in the road. Rear axle is overloaded due to shift. Above. Tanker shows different axle weights over same scales when turned around.
(A description of the Control Cell itself appears on page 122.)

full legal load limit. The drums were cleated to the floor of the trailer to prevent any possibility of sliding. As a check point for determining loads, two different pit beam balance scales were used.

"Couples" Cause Variations

It was found in checking axle load readings that a very considerable variation could be made by the attitude of the tractor in relation to the trailer. When the tractor was turned slightly to the right or left, this injected variations from readings shown with the tractor exactly lined up with the trailer.

Even though the brakes were always released, it was found that the tractor-trailer combination did not completely "relax." A unit drawn onto the scales at a rather rapid rate, stopped and the brakes released, gave different readings from those obtained by stopping the unit before it went on the scales and then drawing it on slowly, using a minimum of brakes in stopping the axle on the scales.

This variation was obviously a result of horizontal "pulling" or "pushing" forces of the trailer carried through the kingpin. These forces—actually friction forces within the structure—introduce what is known to engineers as "couples," and these "couples" are resisted by the wheels and the ground.

To a scale, however, a "couple" shows as a weight reading when actually it is a horizontal friction force in the vehicle. In marginal cases these couples could mean the difference between underload or overload; and, if the truth were known, some fines have probably been assessed based upon axle weight readings which were actually a sum of the axle weight plus
(TURN TO NEXT PAGE, PLEASE)

Axle Weighing Bugaboos—

Continued from Page 69



the horizontal force "couples" imposed in the structure at the time the vehicle was stopped on the scales. This variation could account for some of the variations

What can be done to solve this problem practically?

1. When weighing axle only on any vehicle, a tolerance of at least plus or minus 5 per cent should be allowed for errors of technique in weighing. Friction effects in the vehicle generally will not let the structure relax even though the brakes are released. Positioning of the vehicle on the scales, temperature and road effects on the vehicle all contribute to temporary conditions which do not necessarily reflect as an accurate average of the true static condition of the loaded vehicle. Axle weighing, as it is done today, should be used only for "selective" or "discriminating" weighing. By field sorting of vehicles on this basis, a determination can be made as to which vehicles should be weighed in their entirety for enforcement purposes.

2. Where axle weighing only is done, all wheels on a tandem should be weighed simultaneously. Many States presently follow this practice for there is ample evidence that due to mechanical friction, improper maintenance or, in some cases, poor design of tandem equalizers, there is very rarely true axle equalization.

3. Wherever possible, all wheel points should be weighed simultaneously either on large platform scales with sufficient wheel scales to accommodate all points of ground contact or by electronic units built into the vehicle. This is the only way to approach a degree of reasonable accuracy in vehicle weighing. Even with this technique, there are error-inducing factors such as wind loads. For large vehicles or where gusty or substantial air movements occur, a sizeable error factor can be read in the scales.

4. Allowances must be made for inaccuracies in weighing equipment. Although most State scales are certified to 0.2 per cent error, in reality this tolerance is not met. For example, few, if any, 40,000-lb scales are actually dead weight tested through their entire range. Normal practice calls for calibration through the range of dead weights available, and a calibration curve is generated from this procedure. The curve is then projected onto full scale, and it is "assumed" the scale will act the same in the upper ranges. Few scales are actually tested throughout their range. While few States assess fines on a .2 per cent basis, it is important that field personnel realize in field practice most equipment is actually less accurate.

5. Operators can improve consistency in scale readings by standardizing their methods of placing their vehicles upon the scale. By properly positioning their tractor and trailer the same way each time, certain variables will be eliminated. By checking tire inflation and by properly lubricating springs and tandem assemblies, other variables will be eliminated.

6. Operators should allow some weight tolerance in loading to offset mud accumulation.

7. Operators will soon be able to check their wheel loadings and total weights by built-in electronics devices such as "Control Cells" units now coming on the market. This equipment adds a completely new tool to the trucking industry which should permit important developments in the technique of vehicle loading and vehicle operation.

8. As built-in or integral weighing becomes generally used, States may ultimately be able to check individual vehicles (equipped with sealed electronic weight sensing cells) anywhere at any time without the expense of large fixed installations, and with the assurance that all important points of ground contact are being weighed under identical conditions.

in weight tickets which have been so controversial in the past.

Warpage-Caused Variation

Another phenomenon which was found and which affects the axle load indicated weight substantially is the occurrence of warpage in the vehicle. It was found in the test vehicle that by driving the vehicle through a depression in the road, such as a chuck hole, in which one wheel was temporarily relieved of its load, a redistribution of the entire wheel load pattern occurred. In the case of a semi-trailer and tractor, this readjustment occurred throughout the entire structure as the kingpin actually transmitted the variation from the trailer into the tractor.

This readjustment, although not permanent, remained in the vehicle for a period of one to five miles dependent upon the severity of the adjustment, speed of the vehicle, subsequent road surface, etc. It should be noted that this was despite the fact that the test vehicle was a structurally flexible unit which, theoretically, should have accommodated certain twisting loads with a minimum of resistance. An example of what actually occurred is shown on page 68.

Notice that the vehicle hasn't changed total weight and both sides of the vehicle remain symmetrically loaded, but temporarily a thousand pounds of load has been shifted to the rear axle.

Here is a case in which a trucker could have applied a legal load, checked the weight on a tested scale and received an 18,000-lb weight ticket for the rear axle. If, later on, this same vehicle had dropped a wheel off of a sharp shoulder, hit a severe depression, or otherwise warped the structure temporarily—and had done this within one to five miles of a second weight station—he would have received a 19,000-lb weight ticket for the rear axle showing the truck with a 1000-lb overload. At the rate of 10¢ a pound, this would have caused a \$100 fine. Both scales were right—both read properly the weight applied—yet the conscientious truck driver had carefully not overloaded in the beginning!

(TURN TO PAGE 121, PLEASE)

COMMERCIAL CAR JOURNAL, May, 1954

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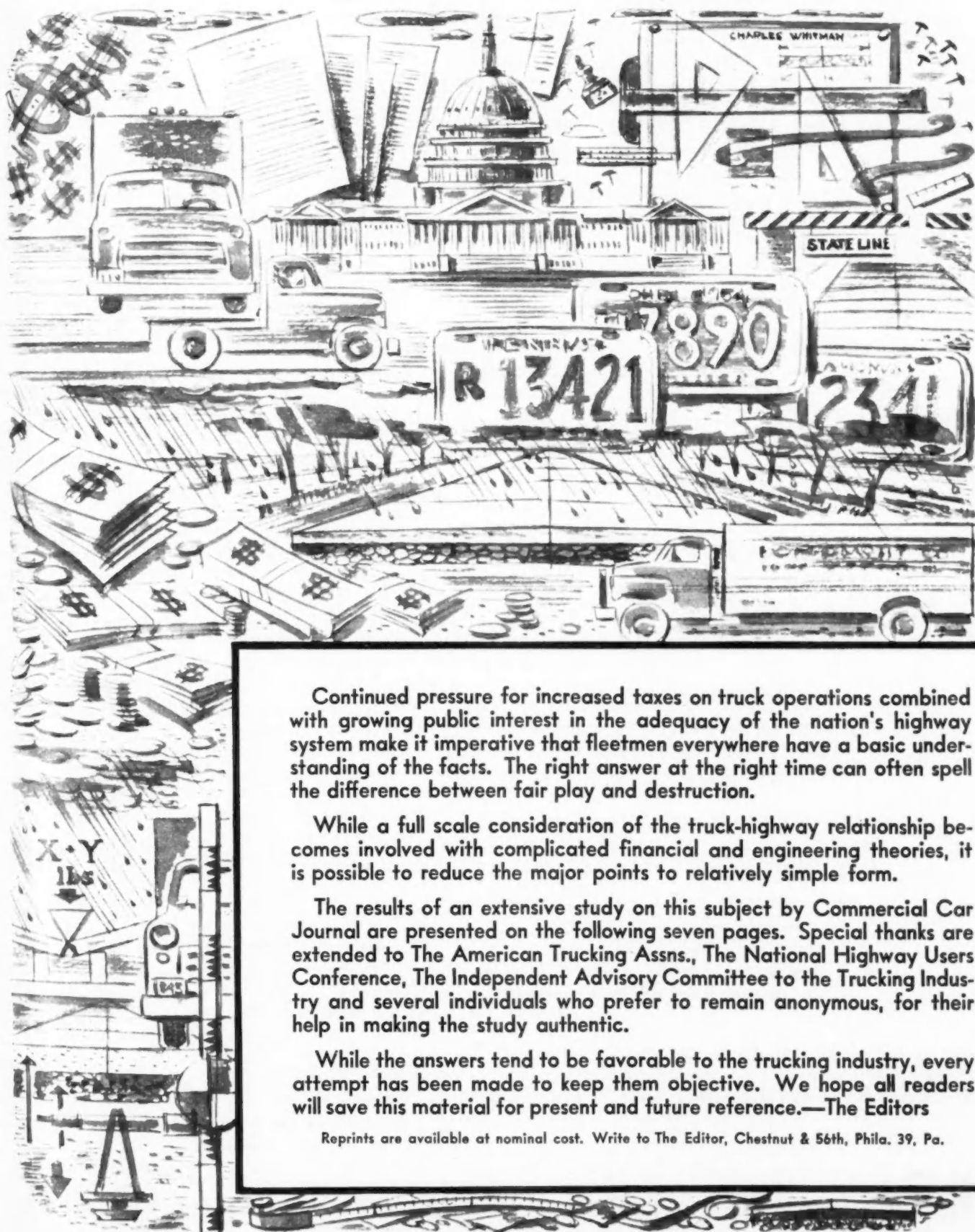
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May, 1954

Commercial
★ Car Journal
Special
Report

TRUCKS and the roads they use

Verified answers to 31 questions frequently asked about the truck-road relationship



Continued pressure for increased taxes on truck operations combined with growing public interest in the adequacy of the nation's highway system make it imperative that fleetmen everywhere have a basic understanding of the facts. The right answer at the right time can often spell the difference between fair play and destruction.

While a full scale consideration of the truck-highway relationship becomes involved with complicated financial and engineering theories, it is possible to reduce the major points to relatively simple form.

The results of an extensive study on this subject by Commercial Car Journal are presented on the following seven pages. Special thanks are extended to The American Trucking Assns., The National Highway Users Conference, The Independent Advisory Committee to the Trucking Industry and several individuals who prefer to remain anonymous, for their help in making the study authentic.

While the answers tend to be favorable to the trucking industry, every attempt has been made to keep them objective. We hope all readers will save this material for present and future reference.—The Editors

Reprints are available at nominal cost. Write to The Editor, Chestnut & 56th, Phila. 39, Pa.

TRUCKS and the roads they use

1. Do trucks have a right to use the highways?

Yes. From the earliest days roads were built primarily for communication, commerce and defense. Trucks now play a major role in each of these phases of the nation's activity. Trucks are part of

every industry in the nation, and there are some 25,000 American communities which rely solely on trucks for everything they need to exist. Without trucks, the nation's business would come to a halt.

2. Should truck owners have to provide their own roads?

No. Here's why: (1) Passenger car users would suffer greatly through the annual loss from general highway budgets of millions of dollars now paid by truckers; (2) great waste would result from duplication of most of the nation's main traffic arteries; (3) Transportation

costs of goods moving by truck would be increased to meet the cost of the roads, thus raising the cost of the goods to the customer; (4) Trucks are entitled to use the roads, as explained above; (5) Most of the existing road system now carrying truck and car traffic can do so efficiently.

3. But if trucks were banned wouldn't highway costs be lowered?

Not appreciably. Minimum standards would still have to be met for defense and high-speed passenger car traffic and to withstand weather. Cost of the right-of-way, line of sight and grade requirements, traffic control and other safety factors are, at most, slightly influenced by the presence of truck traffic. Main potential savings are in reduction of pavement thick-

nesses and perhaps lowered maintenance costs, but in many areas, pavements capable of carrying heavy loads must be built to withstand the effects of weather. Since most heavy truck traffic moves over only about 10 per cent of the highways, a ban on heavy trucks would result in savings only from these roads. Such savings would mean a negligible reduction in highway costs.

4. Do trucks wear out roads?

Trucks, like all other vehicles, contribute to some extent to road wear. But they don't seriously damage good roads. (See Question 6, below.) No road can reasonably be expected to last forever, regardless of the weight of vehicles using it. Studies have shown that design, weather and degree of maintenance all influence the extent of road deterioration, and that

all are closely related. (See discussion of Pumping, question 8.) It has also been found that frequent, intelligent vehicular use of good roads, within the limits of their design standards, like cold working on steel, tends to stabilize and strengthen them and actually to prolong their useful life. The two terms "use of roads" and "abuse of roads" should not be confused.

5. How is design a factor in road damage?

A road which is poorly designed, improperly constructed or built of inferior materials cannot be expected to last as long as a good road. Roads must be built to withstand the effects of weather and the loads which are intended to be imposed on them. Minimum standards to

combat the effects of weather are now generally accepted, while research and testing is still under way to develop more precise information with regard to load capacities of various combinations of pavement types and thicknesses with different types and depths of subgrades.

6. What is a "good" road?

Essentially a good road is one which will carry the traffic using it for a satisfactory life-time. It requires a firm, well-

compacted subgrade of granular material which permits adequate drainage and which will not retain water or go into

suspension to form a thin mud. It must be naturally firm or have firmness built in.

Over the subgrade there is generally a base-course which supports the pavement material and which must spread traffic load out evenly to the subgrade. Base-course materials include crushed stone, gravel, sand-clay, and stabilized soil.

As a wearing course there must be a rigid or flexible pavement. This must be

smooth, surface-sealed water-shedding and crowned at the center to drain toward the shoulders. Typical pavement materials are cement concrete, asphalt, bituminous mixes, brick and macadam. A minimum pavement thickness of seven inches at the edge and six inches in the center has been recommended as necessary to withstand the effects of weather, regardless of the loads to be applied to the road.

7. How important is weather as a factor in road damage?

Rain, snow and changes of temperature can play havoc with a road which is not constructed and maintained to withstand them. Stresses resulting from expansion and contraction can cause serious damage, as can stresses caused by changes of temperature in the pavement. Free water under the pavement in the subgrade can also cause serious damage through removal of base course or subgrade material. The effect of heavy vehicles becomes serious only when there are extreme stresses in the pavement, free water in the subgrade, or when there is no longer a firm base under the pavement due to pumping.



8. What is meant by pumping?

Pumping consists of deflection of a pavement slab under moving wheel loads which results in the ejection of water carrying particles of the subgrade in suspension. As the action progresses, cavities develop in those areas immediately under the pumping slabs, reducing or removing pavement support, eventually resulting in slab breakage and disintegration.

Three conditions must exist to produce pumping: (1) There must be free water under the pavement, (2) Axle loads must be heavy and frequent, and (3) The subgrade soil must be capable of going into suspension. Pumping will not occur if any of these elements is absent.



9. How important is maintenance to road life?

Even a well-constructed road requires adequate maintenance if it is to last.

Minor faults in a road can cause serious damage if not attended to promptly.

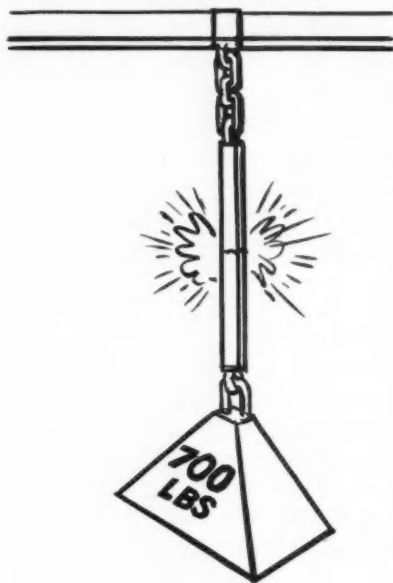
10. What does good maintenance include?

Adequate maintenance requires that the joints of concrete pavement slabs be kept properly filled to prevent water from getting through to weaken the subgrade by setting up a pumping condition. Shoulders must be kept well graded so that water drains away from the road and does not seep under the pavement. Minor

faults should be repaired promptly to prevent serious damage from occurring. Sometimes a subgrade failure in a particular spot will cause so much damage that the entire section must be replaced. However, most subgrade failures if caught in time can be repaired economically and with relatively little effort.

TRUCKS and the roads they use

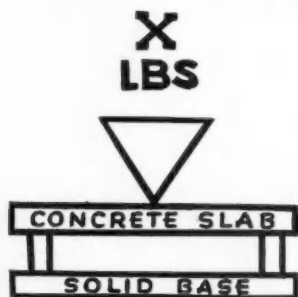
11. What factors influence a pavement's load capacity?



A pavement is held together by an attraction between its molecules known as cohesion. This attraction may be destroyed by either of two forces if they are applied to a sufficient degree. These are: tension, which pulls the molecules apart; and compression, which crushes them.

Tension results from the slab bending. The greater and sharper the bend the greater the tension. Tests have shown that a one-inch square of standard pavement concrete will withstand direct tensions of 700 to 750 pounds without breaking. The point at which breakage occurs is called the modulus of rupture and is expressed in pounds per square inch. Concrete materials now in use have an average modulus of rupture of 700 psi. Highway engineers agree that loads causing tensions in the pavement of less than half the modulus of rupture may be repeated indefinitely without damage to the pavement.

12. What loads may be carried without exceeding the modulus of rupture?



That depends on the condition of the slabs' foundation. If a slab is suspended like a bridge, resting on two supports but unsupported at the center, it will naturally take a much lighter load applied at the center to crack it than it would take if the slab was resting flush on well-compacted granular soil. This is because the slab must be bent before tension can result.

If the slab rested squarely on solid rock, an amount of weight many times greater than currently permitted loads could be placed on its top side without bending it and hence without creating tension.

From this it can be seen why pumping and the resulting removal of subgrade from beneath the slab is the major cause of pavement cracking. When support is removed from under the slab, the slab is bent by loads which otherwise would not affect it. Then, if it bends far enough, tension suffi-

cient to pull the pavement's molecules apart is created and a surface crack is formed.

Compression is no factor in damage to concrete roads, since a weight of 4,000 pounds can be placed on a one-inch square of concrete without crushing it. This is more than any known truck would exert.

13. What maximum load can a pavement carry?

This is not known. However, it is an accepted engineering principle that the important element in determining highway stress is axle load, and not gross load. Therefore, in some cases the pavement can safely carry gross loads in excess of cur-

rent legal maximums provided the load is properly distributed, without exceeding the safe limits per axle. This is particularly true with respect to the use of tandem axles which can carry far more weight than a single axle with little overlap of stresses.

14. Have there been official tests to study the effects of loads on roads?

Yes, several tests have been made; others are now being conducted or planned. Up to now, the best known test has

been Road Test One-MD, otherwise known as the Maryland Road Test, conducted by the Highway Research Board at La Plata.

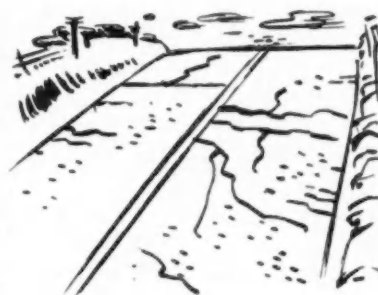
15. What was the purpose of the Maryland test?

The principal purpose was to determine the relative effects of four distinct loads on a given concrete pavement, with two

of the loads being applied through single axles and two others being applied through tandem axles.

16. How were the effects of the different loads measured?

The total length of cracks occurring in the pavement was considered as evidence of the effects of different loads. In order to assure that measurable cracks would result, it was necessary that pumping slabs be present. Shoulder maintenance was therefore neglected until water had saturated the subgrade and extensive pumping had developed. As the slabs continued to pump, enlarging the cavities under the pavement, the cracks were extended and residual cracks developed. Normal maintenance would have prevented this cracking from developing beyond its original and significant point. Since such maintenance was purposely withheld, the amount of cracking was not directly representative of the effect of the loads applied to the test pavement.



17. Is there any objection to this method of measuring the effect of loads?

There would have been no objection if controls had been set up to determine the relative effects which loads, quality of subgrade, amount of drainage and other factors had on the extent of cracking. The report should also have given equal emphasis to its evaluation of the behavior of the slabs on the various subgrades—for example, that cracks developed only where the subgrade was clay which turned into mud, and that

none developed where the subgrade was granular.

Because of these objections to the manner of conducting and evaluating the test, many highway engineers consider its findings on road cracking of little merit. However, it did provide other valuable information with regard to highway construction and maintenance and served to develop testing methods for use in other road studies.

18. What is meant by the claim that truck operators are subsidized?

In its simplest form this charge means that truck operators are not paying their fair share of the cost of the highways they use, and that passenger car owners are paying more than their share.

The charge is often varied to state that users of heavy over-the-road equipment are being subsidized by users of lighter equipment and passenger cars who pay part of the cost of the highways.

19. Is this a valid claim?

No. This is, however, a highly complex and controversial question. It has been the reason behind numerous studies and reports by Federal and State agencies and nongovernment organizations, and is in large part responsible for some of the studies of highway financing now being conducted by highway departments.

The subsidy charge is frequently made without qualification as to whether it means all trucks in the nation or in a particular state are subsidized and for what period the charge is intended to cover. It is interesting to note, however, that

the reports of impartial studies conducted by State and Federal investigating bodies have frequently shown that trucks as a group were paying at least their fair share and were often being overcharged.

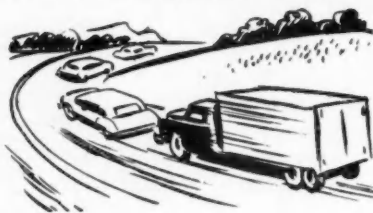
One of the most recently completed state-level studies, prepared for a committee studying highway financing in Virginia showed that in 1952 truck operators as a group paid more than their assigned share of highway costs and that in some cases payments considerably exceeded responsibility. It is significant that while the trucking industry at national level has

TRUCKS and the roads they use

expressed approval of a study to consider the subsidy charge under current conditions, such a study was opposed by the

railways when it was proposed in bill S2365 submitted to Congress during a recent session.

20. Are truckers the only highway users said to be subsidized?



No. Although it is seldom pointed out, the charge to some extent is aimed at all vehicle operators. This occurs when the charge is based on the theory that highway users should pay the total cost of all the roads and streets they use, and that no highway funds should be supplied from general tax revenues.

21. Is this theory sound?

All but a few observers refute this theory since it ignores the fact that the existence of roads provides benefits to other than motor vehicle users. Results of highway finance studies conducted by more than a dozen State and Federal investigating bodies show that vehicle operators were assigned a weighted average responsibility of 66.9 per cent of the cost

of all roads and streets. On the basis of the same weighted studies, in 1952 the total of special taxes paid by motor vehicle operators exceeded their share by 64 per cent. Actually, in 1952 payments by motor vehicle users exceeded by 10 per cent the total expenditures by all levels of government construction and upkeep of all highways, roads and streets.

22. Do studies and reports of this type reflect state highway conditions?

No. However, they do serve as a guide in determining the comparison between

actual payments and charges which may reasonably be made against highway users.

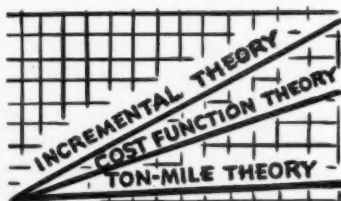
23. What is the purpose of such studies?

Essentially the studies determine answers to three major questions: (1) How much do highways and streets cost? (2) What part of this cost should be borne by vehicle owners and other beneficiaries of the roads? (3) How do these costs compare with the payments actually made?—The results are usually expressed in the form of a statement that vehicle owners either paid or failed to pay their fair

share of the expense of the highways.

In view of the fact that vast increases in highway funds will be needed in future to meet the nation's highway needs, it is vital to all highway users that such funds be obtained on the basis of a fair assessment of the various classes of vehicle owners and that no group of vehicles be required to carry an unfair portion of the load.

24. How are shares to be paid by various types of vehicles determined?



Many theories have been proposed and used in studies. Among these are: (1) The Incremental theory; (2) The Cost Function theory; and (3) The gross ton-mile theory. Of these, the ton-mile theory is the one which has been advocated by the railroads for use in preparing state highway use tax schedules.

25. What is the Incremental theory?

This theory is based on the premise that vehicles of different dimensions and weights require different highway facilities. It requires a thorough analysis of the vehicle-highway relationship to determine the extent to which increases in ve-

hicle size and weight affect the various cost elements of providing the highway. Its value was summed up in these words by former Commissioner Thomas H. MacDonald of the Bureau of Public Roads.

"In spite of the complex analytical pro-

cedure it requires, the incremental method has much to commend it, both from the standpoint of engineering theory and from that of equitable assignment of tax responsibility. In any thoroughgoing tax study the feasibility of its use should be investigated. Because of the technical hazards attendant upon the incremental cost analysis, it would be well for the investigator not to place complete reliance

on this method alone."

It is this method which is most favored by official representatives of the trucking industry provided that thorough research precedes its application as was evident in the study of transportation conducted by former I.C.C. Commissioner the late Joseph B. Eastman when he was Federal Coordinator of Transportation, as reported in the study "Public Aids to Transportation."

26. What is the Cost Function theory?

This theory recognizes that total highway costs are made up of a considerable number of individual cost items, and that these may not be distributed as charges against the different classes of vehicles on the basis of a single yard stick such as ton-miles operated. It divides the cost elements into three distinct categories, using a different yardstick for each category.

One category includes those costs which are not affected by either miles traveled or variations in sizes and weights of vehicles, including charges for such things as landscaping, beautification, historical markers, etc. These charges are assigned to the different groups of vehicles simply on the basis of the number in the group.

27. What is the Ton-Mile theory?

This is a method of assessing charges against highway users on the basis of the weight of the vehicle and its load multiplied by the mileage which the vehicle travels.

This theory assigns all costs of highway construction, maintenance and administration, including purchase of right-of-way, on the basis of gross ton-miles operated. It makes no attempt to analyze or distinguish between the different elements of highway

The second category involves costs affected solely by vehicle miles traveled and are assigned on this basis. These are essentially the basic highway costs and the costs of maintaining and regulating traffic flow, such as purchase of land for the right of way, snow removal, traffic signals.

The third category involves costs which are affected both by miles traveled and by variations in the size and weights of vehicles. These include elements of pavement construction and repair, subgrade materials and preparation, etc. These are distributed among groups of vehicles on the basis of ton-miles operated. Ton-miles are used only because this is the simplest method of computing the distribution of charges in this category among highway users.

costs, and assumes that all costs are affected equally by gross vehicle weight.

It is important to understand the difference between the Ton-Mile *theory* and the Ton-Mile *tax*. The theory is simply a method of assessing responsibility. The tax is an actual levy against certain classes of motor vehicles in addition to their registration fees, fuel taxes, and other highway user taxes. Frequently it is levied solely on commercial vehicles.

28. What are the objections to the ton-mile tax?

This tax is objected to (1) because it is a "third structure" tax (See question 31); (2) because of many weaknesses in its theory and difficulties in its practical application.

One specific objection to the ton-mile tax is that it is based on the false assumption that gross ton-mileage is the sole measure of responsibility for road wear. It also ignores the fact that many elements of

highway costs are unrelated to the weight of the vehicles and that when weight is a factor it is axle weight rather than gross weight. The previously mentioned Virginia study (Question 19) listed only 45.6 per cent of total costs as weight-use costs.

In practice, the tax discriminates against some highway users, is difficult and expensive to administer (nine states which have adopted ton-mile taxes or similar levies have

TRUCKS and the roads they use

either revoked or drastically revised them), adds considerably to the record-keeping requirements of vehicle operators, destroys

tax reciprocity between states and results in higher transportation charges which are passed on to the consumer.

29. What do its critics say about this use of the Ton-Mile theory?

The trucking industry opposes this method of taxation for the reasons outlined above. A statement from the Bureau of Public Roads states:

"The gross ton-mile approach has the virtue of simplicity. . . . It also has the superficial and deceptive advantage of appearing to account, in part at least, for several measures of relative benefit. . . . It is far from precise, however . . . (it) also tends in the direction of compensating for differential costs, but does so very inaccurately. . . . There is also some element of variation with the value of service, but

here again the relationship is obscure."

The Eastman report had this critical comment on it: ". . . There is no evidence which convincingly indicates that for every element of cost the charge should progress upwards as weight and mileage of vehicles increases. . . . This basis, used possibly because it is relatively easy to apply, ignores in important respects the effects of differences in the ways in which loads are transmitted to pavements and roadway structures, and in the utilization of road facilities. It has, therefore, little merit."

30. Are current New York and Ohio tax programs subject to this criticism?

Yes. Both states are using programs which were initiated by the faulty ton-mile assignment of highway user tax responsibility. New York's graduated weight-distance tax represents an attempt to simplify some of the inherent problems of administering and complying with a ton-mile tax formula. Ohio's axle-mile tax is an attempt to overcome a basic engineering fallacy of the weight-distance tax method (which relates gross weight rather than

axle weight to highway costs). However, the Ohio tax contradicts its original intention by penalizing multi-axle vehicles, which follow the recommended engineering practice of spreading the gross load over an appropriate number of axles. Disadvantages of the ton-mile approach, including destruction of reciprocity between states, the high cost of administration, and the expense to truckers of keeping the necessary records are retained in both programs.

31. How much should truck taxes be?

There is no single answer to this question. Tax rates must be set by each state to meet its own needs. In determining the rate, state officials must consider the actual highway needs of the state, the effect which each class of vehicles has on these needs, and the number of vehicle owners who will share in the payment of the taxes. Care must be taken to ensure that cost of providing the highways is shared equitably among highway users and other beneficiaries, and that there is a fair distribution of the highway users' share among all types of vehicles on the basis of their actual responsibility for the costs.

Most trucking industry spokesmen oppose the use of "third structure" taxes such as

New York's weight-distance tax, Ohio's axle-mile tax and others of this type, including the gross-receipts tax, as a means of assigning tax responsibility to highway users. Their basic objection is that such tax programs usually place an unfair tax burden on truck operators, and that they represent an inherent threat to reciprocity among the states. They feel that equitable highway user tax programs can be set up using only the long-accepted graduated registration fees and fuel taxes.

In general, the trucking industry is looking forward to the day when all highway user tax programs are based on a fair distribution among all vehicles of the costs which may be rightly charged against them.



Pictures illustrate uses of ton-mile theory



▼ **DISTURBANCE**
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Pictures illustrate methods and facilities used to keep shop men informed

on latest equipment design as well as on basic fundamentals of maintenance



In Cleveland, a shop foreman, union, Board of Education cooperate to form . . .

Mechanic Training Classes— Solve Help Shortage

V DISTURBED by a lack of heavy truck mechanics in the area, an energetic young shop foreman has been the driving factor in the establishment of a unique series of classes at which mechanics—both young and old—learn the latest techniques.

Reno Aquilano, 27-yr old foreman for Reliable Trucking Co. (a subsidiary of United States Truck Lines), never finished high school, but he obtained a teaching license from the Cleveland Board of Education and serves as an instructor in the school. Purpose of the school, he said, was to keep mechanics up-to-date on latest advances in truck maintenance and to cut down costly repair jobs through preventive maintenance.

Sixty men, in four classes of 15

each, began taking the courses in January, 1953, when the school began. Subsequently about half dropped out. Among the truck lines with men in the course were Reliable Trucking Co., Norwalk Truck Lines, Consolidated Cartage, Best Transport, Cleveland Cartage, Allmen Transfer, Superior Transfer, Cleveland Builders Supply, Ramus Truck Lines, CCC Highway, Inc., Shirks Motor Express and others.

Basically the school took up each engine component separately; discussed operational fundamentals of the unit; where

trouble arises; and how to correct it. Also included was a discussion of basic electricity, review of storage battery use, engine tune-up and use of various testing instruments. Specific subjects covered include starting motors, generators, voltage regulators, ignition systems, distributors, coils, condensers and advance mechanisms.

How It Started

Here's the way it all started: Reno was an employee of the International Harvester Co. when he was recommended as just the man

(TURN TO PAGE 118, PLEASE)

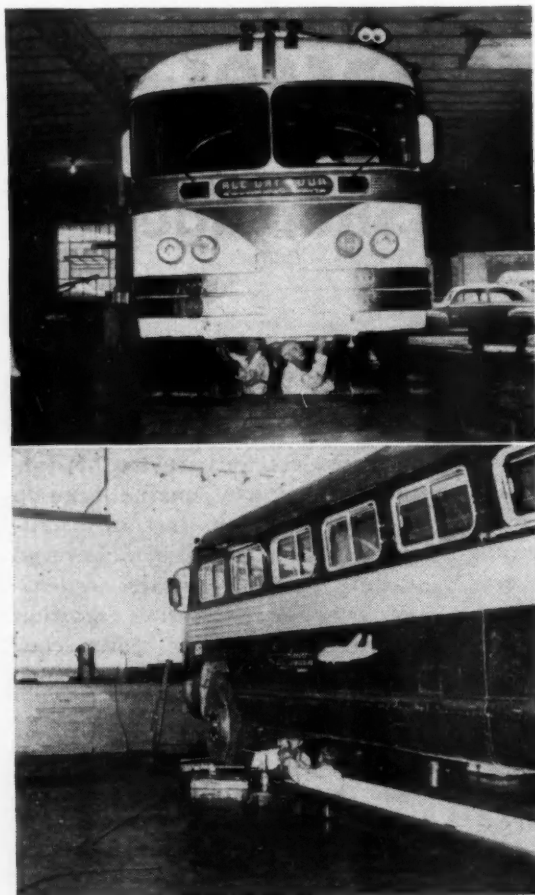
From an interview with
Leo J. Olson
 Superintendent of Maintenance
 Gray Line of San Francisco



Ninety-four of these 31 passenger buses are used in San Francisco sight-seeing. Part of the modern shop is in background

APPEARANCE MAINTENANCE Sells Sightseeing at G

Below. Lube men take care, cut clean-up time
 Bottom. Inspection follows rigid neatness rules



There's no more "rubbernecking" in at least 80 cities of the U. S., and "barkers" are a breed of the past, thanks to the progressive approach to sight-seeing developed by Gray Line. Last year more than 12 million people paid upwards to \$55 million to see American cities and their immediate surroundings via Gray Line. They were transported over many miles in limousines or buses that started on time, stopped on time and made the best possible use of time enroute. They were provided with dignified, informative commentaries along the way by well-trained guides sometimes doubling as drivers. They saw America, and they got their money's worth.

Guided tours as set up by the Gray Line system offer a continuously expanding tourist attraction due to the name that good service has built. The more than 100 associated companies making up the system are independently owned and operated, but they are licensed under franchise to use the Gray Line name and are regulated through the national headquarters in Chicago. While many of the member companies also operate limousines, drive-it-yourself cars, and sight-seeing boats, the majority of the customers travel by bus.

Providing this safe, dependable (and interesting) transportation imposes plenty of headaches—for tourists have a habit of demanding the best. Maintenance poses separate and distinct problems—for traveling men won't wait. One thing that cannot be slighted at any cost is appearance maintained—for cleanliness, as much as any single factor, sells sightseeing. Here is how Gray Line of San Francisco sets one of the highest shop and equipment appearance standards in the nation.

OVER 250,000 people a year "Really See San Francisco with Gray Line," but few of them realize the many problems associated with providing conducted tours through this fabulous city of the West. It's a small line, as bus properties go, but tourist transport here represents probably one of the most unique operations in the nation.

With 94 33- and 37-passenger buses—many of them the familiar glass-topped parlor car types, 24 airport buses and

Clean, painted
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Leo Olson, su
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Clean, painted floors, adequate ventilation and good lighting characterize shop, help improve work quality

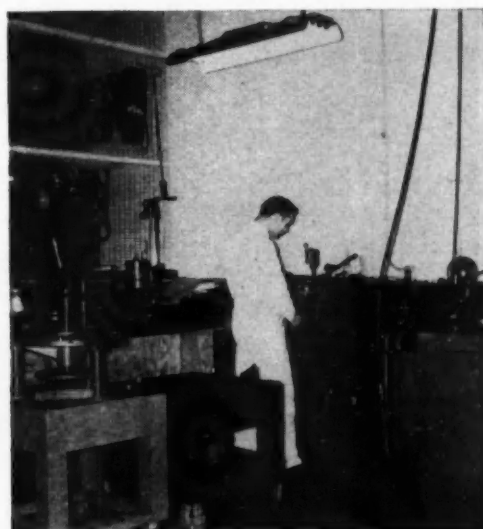
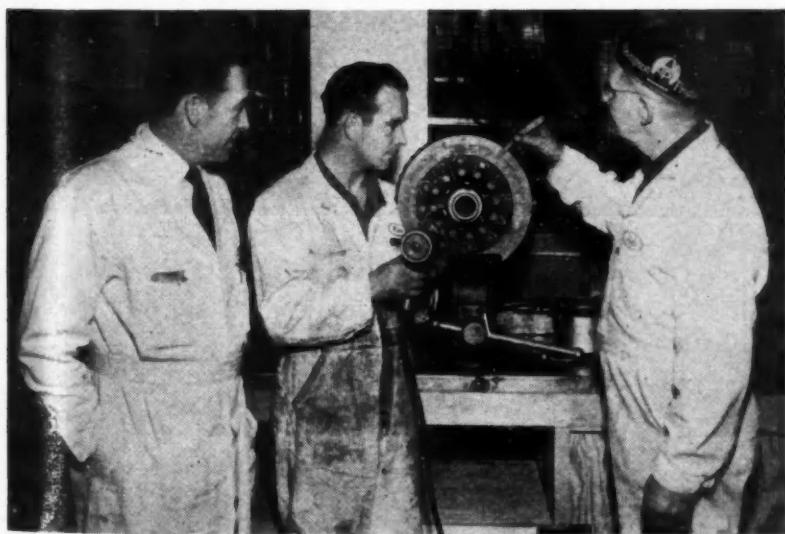
Below. Work areas in and around pits show meticulous attention aimed to reduce hazards from dirt and grease



Below. Engine room, where all rebuilding is done, meets same standards of neatness

ng at Gray Line

Leo Olson, superintendent of maintenance, left, watches check of clutch plate. Mechanics, too, are careful of their appearance



40 seven-passenger limousines, Gray Line of San Francisco operates over two million miles a year. Nearly 700 tourists a day, summer and winter, are conducted through the nation's playground city in equipment that is outstanding because of its appearance and its dependability.

There are some good reasons why the tourist looks up the Gray Line system when he hits town. He knows that Gray Line here has put customer service first—that the company lives by the following rules:

1. Equipment must be clean and eye-appealing. Appearance, more than

any other single factor, sells sight-seeing.

2. Equipment must be well maintained. You can't afford a road delay when you have 31 people aboard who are on tight schedules.

3. Equipment must be safe. An
(TURN TO PAGE 140, PLEASE)

Ringsby's Control Tower

Keeps Trucks on the Beam



Photographs courtesy Trailmobile, Inc.

Inbound combinations, above, stop for refueling at the tower. Outbound rigs stop to be weighed on the tower's built-in platform scale, at left on facing page. Interior view of air-conditioned office atop the tower, where controls and recording dials for both operations are located, is at left



"Cleared
That's all
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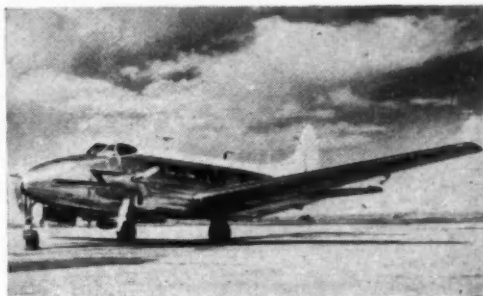
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"Cleared for take-off." "Roger. Over and out."

That's almost but not quite the way trucks are dispatched from the airport-type tower office, control center of the fleet's Denver operation



T"TOWER to driver. You're cleared for immediate take-off."

"Driver to tower. Roger. Over and out."

This probably is *not* the conversation that takes place when one of Ringsby Truck Lines' over-the road rigs leaves the fleet's Denver terminal.

But it well could be.

In an air-conditioned glass house atop the company's airport-type control tower, the dispatcher has supervised refueling operations, entered the exact amount of fuel taken-on, checked origin and destination points, cleared with the maintenance department, has an exact figure on all axle weights, and satisfied himself that everything is in order.

And he has accomplished the

whole job without leaving his chair!

How He Does It

All of this is made possible through the unique facilities in the Ringsby control tower, design of which was obviously borrowed from the airlines. Ringsby's air-minded executives travel extensively in the company's twin-engine, seven-place plane. With it, they cover the fleet's extensive routes and far-flung terminals that stretch from Chicago to Los Angeles and blanket the Colorado-Wyoming area. They figured the control tower idea was too good a feature to miss in their own operation.

Tower equipment includes complete refueling facilities, a built-in

platform scale, inter-communications facilities with the chief dispatcher, the freight dock and the shop. It is the first contact with incoming drivers and the last with outbound drivers. A loud speaker on the roof makes truck movement control easy.

Inbound—Refuel and Wash

Check in and refueling is the first step for inbound rigs, and it's done faster than the airlines can do it. Fuel pumps, delivering 35 gallons a minute, are located in an annex and connected to recording dials in the tower office. Five minutes is plenty for an average job.

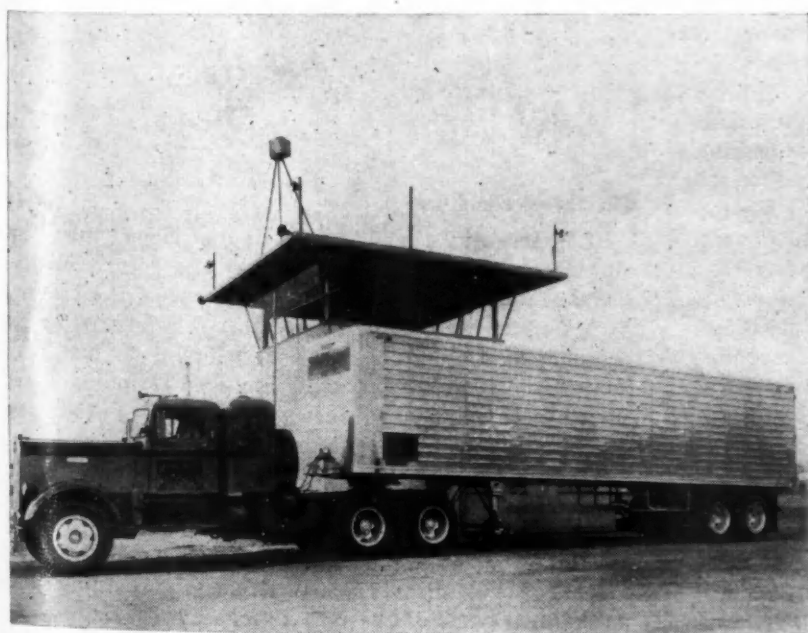
Next stop for an inbound combination is to have the trailer washed. As each rig comes in, the trailer gets a king-pin to tailgate bath with a self-powered "laundry." This machine has a vertical row of powered brushes and a forced-spray for the cleaning solution. Operated by one man, it moves down one side of the trailer, across the back and up the other side.

In the meantime, the tower dispatcher has notified the central dispatch office that the load is in, and the freight dock, in turn, is alerted for speedy handling of the freight.

Outbound—Check Axle Weights

Last stop for an outbound load before hitting the highway is also the tower control office. The truck stops on the platform scale located at the base of the tower on the opposite side from the fuel delivery hoses.

(TURN TO PAGE 116, PLEASE)



HOW TO DESIGN REEFERS

Directed air flow and stripping would correct most common deficiency—inadequate

A DEFICIENCY exists in most highway reefer vans, which could be eliminated by simple and relatively inexpensive modifications of the interior. Failure to take appropriate corrective action is no doubt based on ignorance of the fundamentals involved. Complacency is no longer justified in view of data developed by private concerns and a federal agency. There remains no question as to the need for improvement. This article explains how to accomplish it.

The following comments are limited to the type of refrigerating system in general interstate use whose cooling unit is located in the nose of the trailer with blowers to circulate the required amount of air. Furthermore, they are predicated on the assumption that the trailer possesses a proper relationship between the capacity of the cooling unit and the thermal characteristics of the body. This consideration pertains only to the interior design of such a van.

"Hot Spots" Cause Trouble

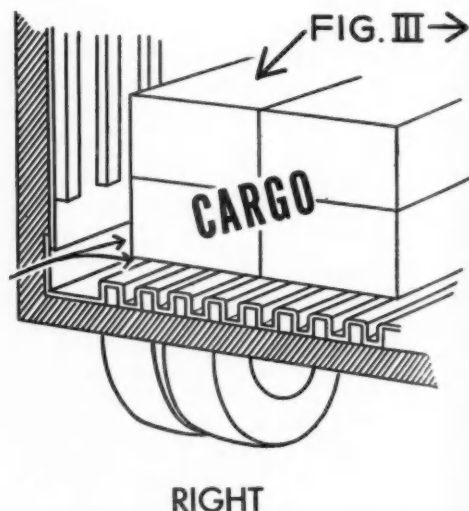
Relative to precooled packaged perishables, the common deficiency is the failure to maintain *all* the lading at proper temperature enroute. "Hot spots" at critical locations, usually along the floor and sidewalls, cause a temperature rise in the lading adjacent to those surfaces. This condition results from inadequate air circulation within the cargo section.

Let's look at the problem this way. When the inside of the van is colder than the outdoors, heat is coming in through the insulation *on all sides*. Therefore, all sides of the lading require protection, not just the top of the cargo. The object is to "float" the cargo in a bath of circulating refrigerated air. It is readily seen that the good temperature distribution in an *empty van* is by no means indicative of the conditions existing when cargo is placed therein. There is nothing more mendacious than a diagram of the side view of a reefer with arrows positioned conveniently to suggest perfect temperature distribution. That result can be obtained only by proper interior design.

A combination of two design features is required for optimum distribution of temperature protection to all the lading. Either one without the other is relatively ineffective. They involve *directed air flow* and *stripping* of the lading. A discussion of each follows.

By R. F. Allyne

Refrigeration Engineer
Hunter Mfg. Co., Cleveland, Ohio



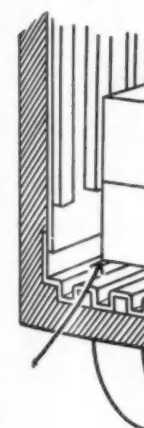
Directed air flow

It is essential that cold air be discharged near the ceiling towards the rear and that the return air be drawn from the floor level at the front of the trailer. This feature creates the inducement for the air to pass completely around the cargo, and it will do just that subject to the provision of the required stripping. This can be accomplished by incorporating a duct to cause all of the return air to be drawn from floor level.

The duct must be designed so as to preclude short-cycling of air down the two front corners of the cargo section. With such an arrangement, temperature conditions at all lading locations will meet the requirements of the most critical shippers providing the mechanical parts of the unit function properly.

BET

circulation



Stripping

Stripping space between lated surface providing t air around t on the side floor, but no And it mus to impede Unobstruct for air to rear of th under the (TURN T

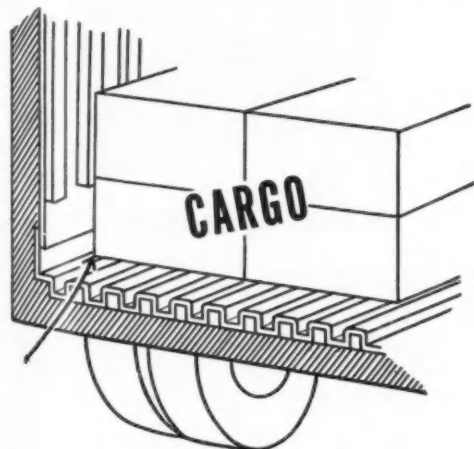
RS

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quate

circulation in cargo area

II→



WRONG

Stripping

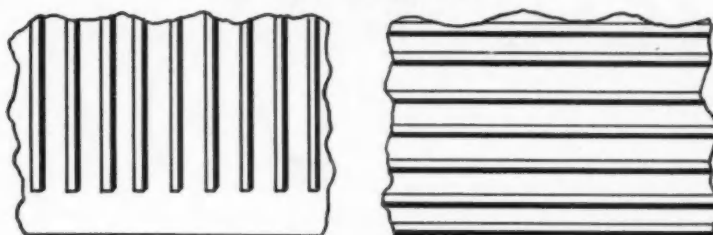
Stripping is the providing of space between the cargo and insulated surfaces. It is the means of providing that film of circulating air around the cargo. It is required on the sidewalls, rear doors and floor, but not on the return air duct. And it must be so designed as not to impede the natural flow of air. Unobstructed passage is required for air to pass downward at the rear of the trailer and forward under the cargo.

(TURN TO PAGE 102, PLEASE)

May, 1954

COMMERCIAL CAR JOURNAL, May, 1954

SIDEWALL SPACERS

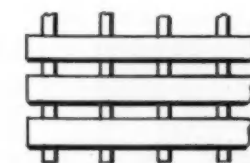


RIGHT

FIG.1

WRONG

↑
FRONT
REAR
↓



RIGHT

GOOD AIR
CIRCULATION
FROM REAR
TO FRONT
UNDER
CARGO



WRONG

POOR AIR
CIRCULATION
FROM REAR
TO FRONT
UNDER
CARGO

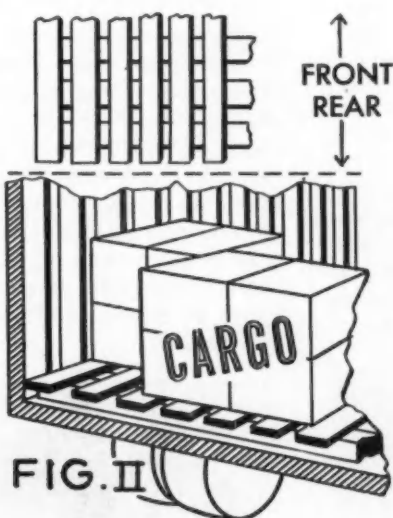
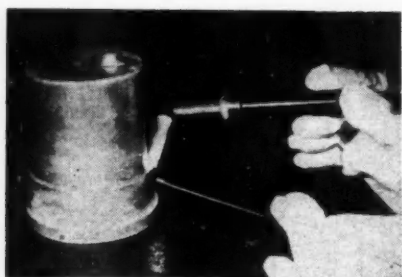


FIG. II

Fig. I, at top, shows right direction for side wall spacers. Above, Fig. II illustrates correct way to build floor racks. Arrows in Fig. III, above left, show how the "right" gutter holds cargo out, permits air moving down side wall to circulate forward to reefer unit. "Wrong" gutter construction allows cargo to seal off circulation toward front of trailer, causes a "hot spot"

New PRODUCTS

The latest developments in parts, accessories, tools and equipment for the fleet field, described in brief for your convenience

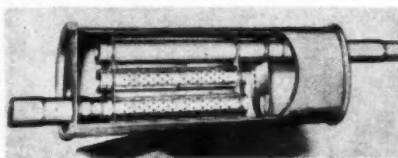
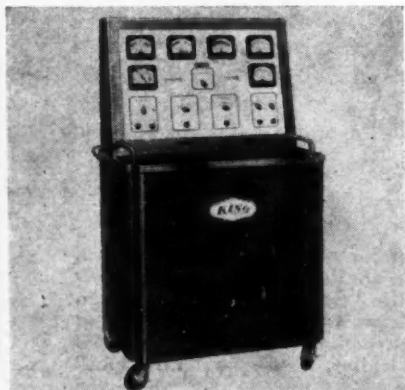


P1. Welding Holder

A new light-weight, water-cooled "Heliweld" holder has been produced by Air Reduction, New York City, for welding thin gauges of aluminum, stainless steel, copper base alloys, magnesium and killed steel. The Model No. H12A is completely water-cooled.

P2. Ignition Analyzer

A complete engine analyzer with a portable VAR (volt-amp-resistance) tester is announced by King Electric Equipment Co., Cleveland, Ohio. Designed for use on 6, 12 and 24-volt ignition systems, the unit operates from any AC electrical outlet. Two testing leads cover all engine testing.

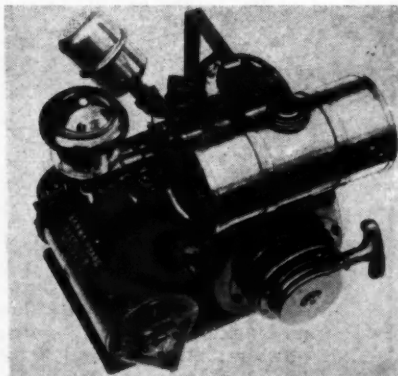


P3. Mufflers

Renovation of their entire muffler line has now been completed, according to Pratt Industries, Inc., Chicago, Ill., including such features as: gas-tight compressed end caps, heavy gauge steel throughout, twin half tube construction, especially designed cushion chambers, multiple spot-welded body seams and multi-wrapped bodies.

P4. Auxiliary Generator

This light-weight, gasoline-powered auxiliary generator, announced by Lane and Beane Truck Repair Co., Baltimore, Md., is designed for recharging batteries without removing them from the vehicle. Used primarily for vehicles requiring high current draw and relatively low mileage, the unit brings the battery up to a state of charge sufficient to start the engine.

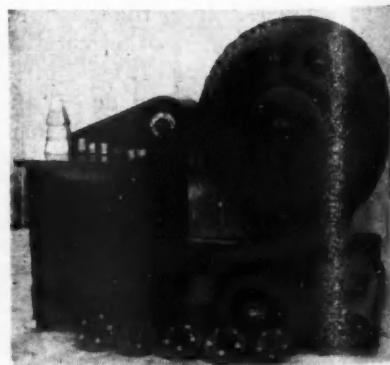


P5. High-Speed Compressor

A new, high-speed compressor for automotive or other applications is being built by Copeland. It is belt-driven, has a wide range of capacities, and can be operated from 1/2 to 3 hp.

P6. Tire Conditioner

The "Mabco" tire conditioner, manufactured by Tobey's Rasp Service, Santa Cruz, Cal., is a new method of tire conditioning to correct out-of-round tires. It can condition truck tires up to and including 11:00 by 22 mounted on the wheel. It removes the high spots on the tire without affecting the wearing tread. Only the excess rubber is removed.



P7. Carb

A new automotive product marketed by Zecol, Inc. is a gum cleaning carburetor. This "Carb-Aid" is a fitting to the carburetor adapter that fits into the carburetor in a plastic tube adapter to hold the position for a brush to apply outside of cleaning.

P8. Dang

New dang... Wm. Lee... 45 hr on 5/8" fitted with lenses, each. It is said to be proof. It has a hook and handle and weighs 5 square and hook handle to 19 in.

P9. Valve

Manufacturing... facing machine... Way Super... announced... neering Co... Engineering... motors, to... tra power... speed indu... the grinde... pump, a 1/2" on the chu... bly drives... chuck. The micro-switch

P7. Carburetor Cleaner

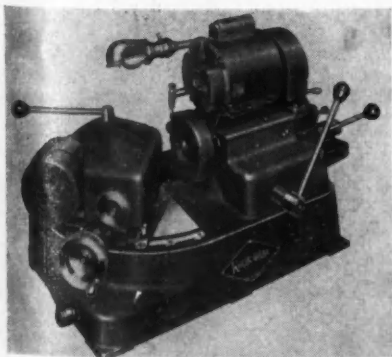
A new addition to its line of automotive chemicals is being marketed by Lubaid Co., Division of Zecol, Inc., Milwaukee, Wis. The new product, called "Carb-Aid," is a gum dispersing solvent for cleaning carburetors on the engine. This mixture is introduced into the carburetor through a "Carb-Aid Kit." It consists of a fitting to plug off the gas line, an adapter that attaches to the carburetor in place of the gas line, a plastic tube for connecting the adapter to the can, special clips to hold the can in the proper position for gravity feeding, and a brush to apply "Carb-Aid" to the outside of the carburetor for cleaning.

P8. Danger Lamp

New danger lamp announced by Wm. Lee and Son, Chicago, burns 45 hr on $\frac{5}{8}$ pt of kerosene. It is fitted with three red bulls-eye lenses, each with a white border. It is said to be wind and rain proof. It has a chimneyless burner and removable fuel tank. Constructed of 22 gage steel, it weighs 5 lb, measures $5\frac{1}{2}$ in. square and 12 in. high. A sturdy, hook handle increases the height to 19 in.

P9. Valve Facer

Manufacture of a new valve facing machine, called the "Kwik-Way Super-Matic," has just been announced by Cedar Rapids Engineering Co., Cedar Rapids, Iowa. Engineering features include: two motors, to provide a reserve of extra power—a $\frac{1}{3}$ hp constant speed industrial type motor drives the grinder spindle and coolant pump, a $\frac{1}{12}$ th hp motor mounted on the chuck bearing slide assembly drives the lever operated chuck. The machine also features micro-switch control.



P10. Work Tray

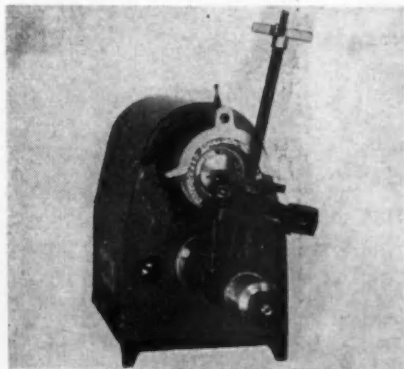
A new work tray is available from McBride Products, San Jose, Cal. It fits on top of the radiator and is supported by braces, adjustable to any height through use of thumbscrews. It measures 16 by 22 in.

P11. Hydraulic Jacks

Blackhawk Mfg. Co., Milwaukee, Wis., announces a new line of hydraulic hand jacks in capacities of 3 through 20 tons. Called the G.V.W. (gross vehicle weight) Series, these jacks are designed to handle the new lengths, axle heights and capacities of trucks, trailers and buses. Through a new combination of collapsed height, plunger travel and screw extension, G.V.W. jacks will lift all types of modern trucks. New design features include oversize malleable iron pump beams, tough malleable iron top caps, sharp tooth cross-milled serrated saddles and pumps that can be replaced in the field with an ordinary wrench, at a nominal cost. A 68 per cent interchangeability of working parts on all models from 3 through 20 tons assures lower maintenance costs and faster repair service. One handle fits all jacks.

P12. Con Rod Tool

To recondition the crankpin end of con rods in engine overhauls, Sunnen Products Co., St. Louis, Mo., has developed new equipment that makes it possible to do the job quickly, easily. The new cap and rod grinder holds parts straight and square while they are being ground. The face plate, against which the part being ground is clamped, is precision ground to make it absolutely flat and parallel with the precision honed arbor on which the plate is mounted.

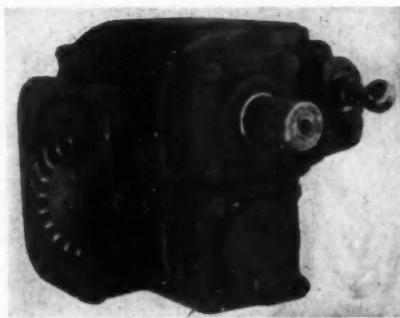


P13. Parts Cleaner

Petroleum Solvents Corp. announced Petisol No. 505 piston and block cleaner. According to the manufacturer, it is a fast, easy to use, economical cleaner specially compounded for the cleaning of pistons, engine blocks and other dismantled internal engine parts. It is also valuable for removing rust and scale from the cooling systems. It is a cold-type cleaner that may be diluted up to four times its volume with mineral spirits.

P14. Power Take-Off

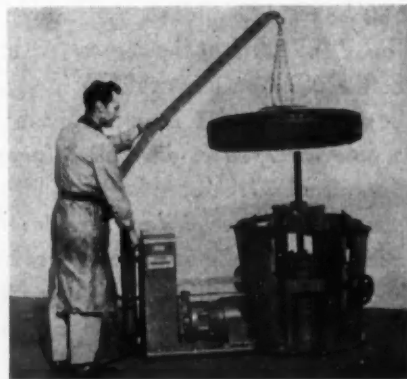
Arrow Gear Co., Broken Arrow, Okla., announces that deliveries of their new Model "BH" all-helical-gear, power take-offs are now being made. This new two-speed forward and one-speed re-



verse power take-off incorporates several new features. Gears are of the helical design to give the power take-off stronger teeth on the gears and make possible a quieter running unit.

P15. Tire Changer

A new model "Tiremaster," a machine for breaking beads and mounting or demounting truck, bus and heavy equipment tires, has been announced by Salsbury Corp., Los Angeles, Cal. Chief among the features of this hydraulically operated, electrically (TURN TO PAGE 146, PLEASE)





\$10 →

Shop Hints

Here are some swell time savers for fleet shops.
Let us have your ideas for new tools or short cuts
to service . We'll pay \$10 and \$25 for good ones.

\$25 ↓

Cylinder Head Stand

By C. R. Seaberg, Mechanical Superintendent
Inland Petroleum Transportation Co., Seattle, Wash.

This work stand has proved to be a time-saver in working on cylinder heads from our fleet of 32 GMC 671 diesels. Two brackets, as shown, are bolted to the steel top of a portable table. To the top of each of these brackets is bolted a 4 by 8 in. plate of $\frac{3}{8}$ -in. thick stock with a $\frac{1}{2}$ -in. dia stud and nut. This bolt hole is placed $\frac{5}{8}$ in. down from the top of the plate at the center. At the bottom of the plate on each side $\frac{3}{4}$ in. up from the bottom and $13/16$ in. in from the side, drill a hole for $7/16$ -in. dia bolts. These 4 bolts, threaded into the cylinder head lifter bracket holes, hold the cylinder head in the stand, and the $\frac{1}{2}$ -in. dia stud permits revolving the head to any position. Tightening the $\frac{1}{2}$ -in. nut holds the cylinder head at the desired position.



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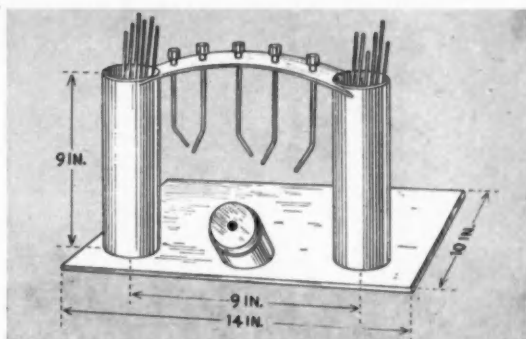
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Handy Shop-Made Rack Speeds Welding

By F. P. Coulomb, Inglewood, Cal.

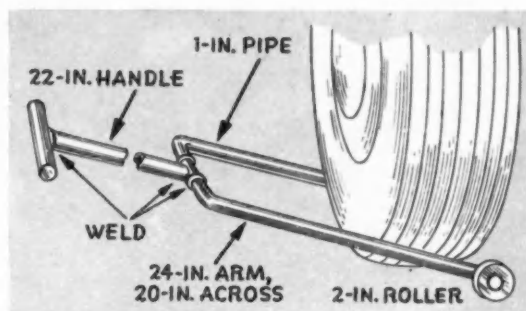
Starting with a 14 by 10 in. scrap piece of steel as a base, I built this handy rack to hold needed welding accessories. To the plate, I welded two pieces of 3-in. dia pipe 9 in. high at centers 9 in. apart. These serve as holders for short pieces of welding rod. To these pieces of pipe is welded a curved strip of 3/16-in. thick by 1 1/2-in. wide flat stock which had been drilled to hold a set of small torch tips. On the front center of the base plate I welded, at an angle, a short section of 3-in. dia pipe to serve as a holder for a can of flux.



Wheel-Mounted Fork Eases Tire Changing

By E. Ballard, Board of Education, LaGrange, Ky.

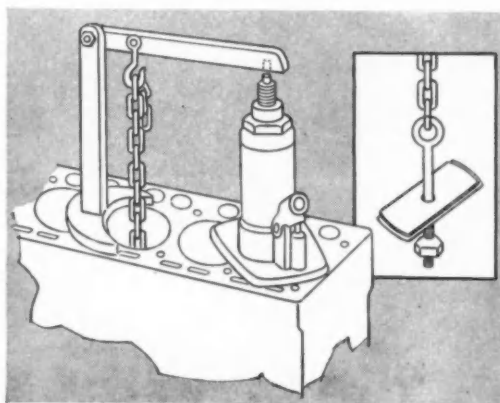
With one hand on the tire and the other on the handle of this lift, I can easily slide a wheel with tire mounted onto the wheel studs. I took a piece of 1-in. pipe 22 in. long and two pieces of 1-in. pipe each 24 in. long and fastened them in a pipe T as shown. After bending the two 24-in. lengths to form a cradle for the wheel and tire, I mounted 2-in. rollers on each end. For extra strength, the pipe joints at the T were spot welded.



Unit Pulls Cylinder Sleeves Using a Jack

By D. N. Kafoid, Kafoid Lumber Co., Caruthers, Cal.

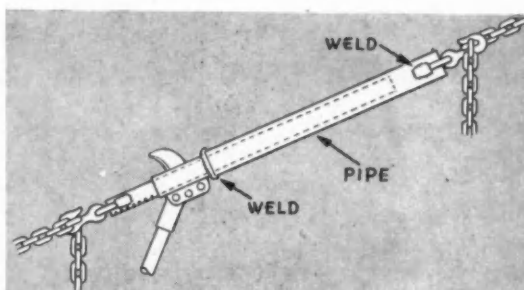
This puller can be used to remove cylinder sleeves with the engine block still mounted in the frame. A 5-ton jack provides the lifting power for this shop-made pulling unit. At the bottom of the chain is a plate cut to the outside diameter of the sleeve with the outside edge recessed the thickness of the sleeve. The center of this plate has a 1-in. dia hole, through which is run a 5/8-in. dia eye bolt. The nut on the bolt is welded and shaped to provide a sloping guide for centering the plate on the rod. The plate is cocked on the rod and dropped into the cylinder and then pulled-up tight against the bottom of the sleeve. The chain is then hooked to the lever arm at the top and the jack operated to pull the sleeve.



Modified Bumper Jack Used to Hold Frame

By R. W. Anderson, Wisconsin Rapids, Wis.

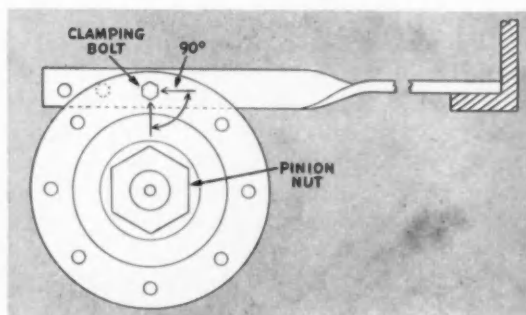
This handy unit for pulling and holding components in position for welding was made from a bumper jack. Discarding the base, I took a piece of pipe the length of the jack shaft when the jack mechanism is all the way up and welded it to the jack mechanism. To the end of this pipe and to the other end of the jack shaft, I welded a grab hook. When used with lengths of chain, this tool pulls and holds until a break can be welded. Be sure to weld the pipe on the correct side (or bottom) of the jack.



Brace Eases Removal of Tight Pinion Nuts

By J. Shramko, New York, N. Y.

I made this tool from 1/4-in. thick by 1 1/2-in. wide scrap of sufficient length to accommodate the trucks I work on. At one end, I drilled three 3/8-in. dia holes about 1 in. apart to fit the various truck models. About 1/3 of length from the end with the holes, I gave the bar a 1/4 turn. To remove pinion nuts, I line-up one of the holes in the bar with one of the holes of the pinion flange and insert one of the flange bolts. The other end of the bar is braced inside of the chassis frame as shown. This is in such a manner that when a wrench is applied to the pinion nut, the bar makes a 90 deg angle with the centerline of the pinion nut and the flange bolt used to clamp the bar.





Top Notch Maintenance by Con

VEIGHTEEN times in the last 10 years Consolidated Freightways, Inc., Portland, Ore., has made news on **COMMERCIAL CAR JOURNAL's** editorial pages. The stories have covered everything from Max Jensen's Driver Safety Program to some of the minute details of Bert Ogden's fantastic shops. From Vice-President Jack Snead, we have heard about lightweight materials, and there was a supporting story on the late Peter Jolly's trailer body shop.

All this to say nothing of the Freightliner Corp., a manufacturing subsidiary, that is now delivering nearly 90 per cent of its truck pro-

A fleet shop visit

By Bart Rawson

Editor, Commercial Car Journal

duction to fleets other than Consolidated.

It's small wonder that Consolidated has produced so much material. It is the nation's second largest common carrier and undoubtedly the world's largest truck shop.

A brief trip through these shops—and our time seems always limited—is rather breath-taking. It is difficult to put one's finger on any one phase of the operation without going into such great detail that

it would fill an entire issue of CCJ.

However, we were fortunate in securing, through the cooperation of Consolidated's public relations department, a set of excellent pictures showing the major phases of the shop installation.

These we are presenting with our own interpretations in the captions as a picture-story progress report on Consolidated's shops as of now. While none of these photographs have been used before, CCJ readers may recall previous discussions on some of the different departments involved. Story begins at top of this page.

◀ Most heavy
Portland shop
lubrication area
is 60 ft long (two
vice lanes).
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also shows a
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three-axle trailer.
Both 10,000 and
lb GTW.

This section of
shop deals with
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workbench and
individual hoists

Further along
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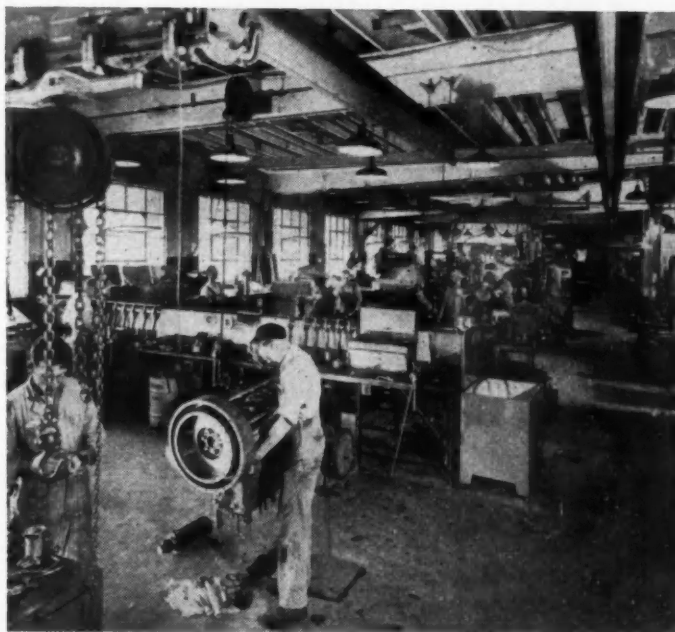
Service area
needing more
be handled
PM service
all mileage
for major components
rather than
ment.

(TURN TO PAGE 91)

COMMERCIAL CAR JOURNAL

◀ Most heavily-traveled section of the Portland shops is the inspection and lubrication area. Each of the six pits is 60 ft long (two in each of three service lanes). Generally PM inspections are done in first series of pits; lubrication at second, in foreground. Photo also shows a number of Consolidated's vehicle types. Backbone of road equipment is the Freightliner COE tractor—used with either a 40 ft semi or two 24 ft semis in train—and the Freightliner three-axle truck used with two-axle full trailer. Both can haul loads up to 76,000 lb GTW.

This section of the main rebuild ▶ shop deals with small parts overhaul. A separately enclosed and filtered room, at right, is for diesel fuel pump and injector maintenance. Note attention to such detail as the catwalk in front of workbench and pedestals for holding individual hand tool boxes.



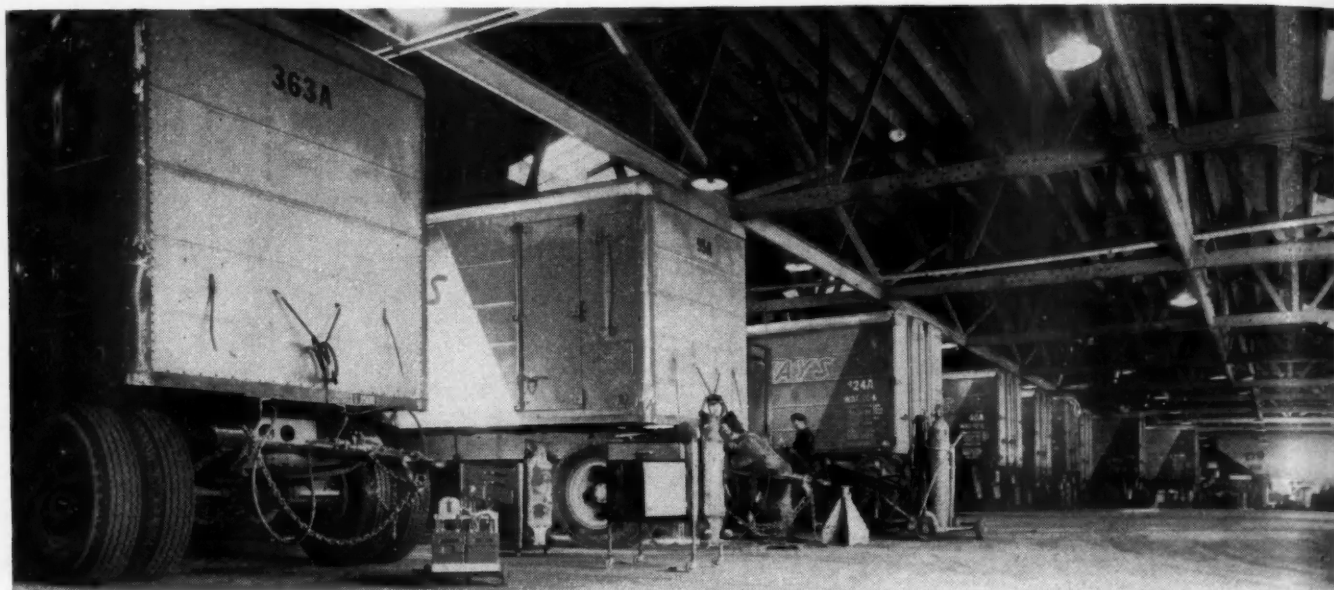
by Consolidated

Further along in the rebuild shop, ▶ we come to major unit overhaul. In the foreground, mechanics are re-assembling diesel engines, further back are sections for transmissions, rear-ends, other components. All major components are kept in stock and installed on a unit exchange basis.

Service area provides space for units ▶ needing more major repairs than can be handled on inspection pits. While PM service is still on a fixed schedule, all mileage limits have been removed for major component overhaul. Wear rather than mileage controls replacement.

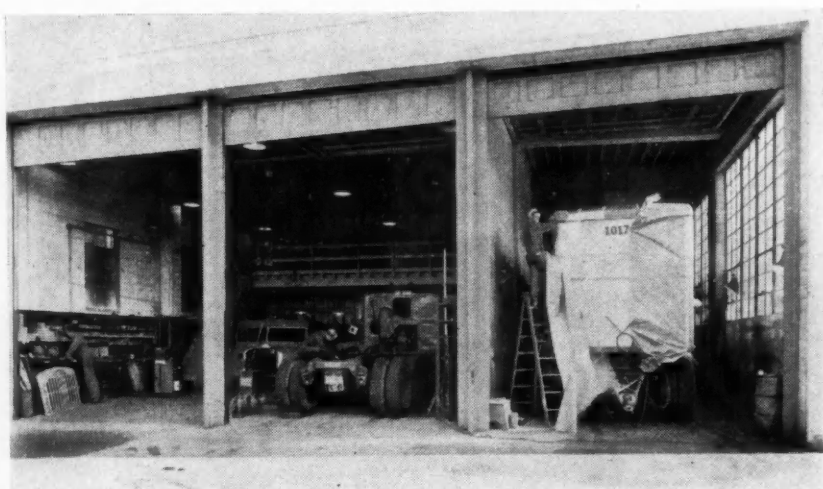
(TURN TO NEXT PAGE, PLEASE)





Top Notch Maintenance . . .

Continued from Page 91



▲ Another view of the main service area shows there is plenty of space. Special design ceiling construction eliminates need for posts. Virtually all equipment is portable as indicated by the several examples in the picture. In the left foreground is a Freightliner designed, permanent, full-trailer front axle incorporating several unique safety and tracking features. Converter dollies are also used for coupling a second semi-trailer into a train as a full-trailer.

◀ Here's a small section of the main body shop. It extends considerably further to the left. Since all of the trailers are aluminum, painting is held to a minimum. However, paint stall at left is completely equipped with ventilating exhaust, explosion-proof lights, full "daylight" wall.

◀ Pickup truck maintenance is entirely separated from road equipment shops. While the same rigid schedules as those used for road equipment are maintained, all work, including major overhaul, on the pickup is done in this shop annex.



Today

POWER

Here is an efficient steering unit that line installation. Steering is of the be adapted to any without extensive present steering creasing demand efficiently and m Bendix Power Ste

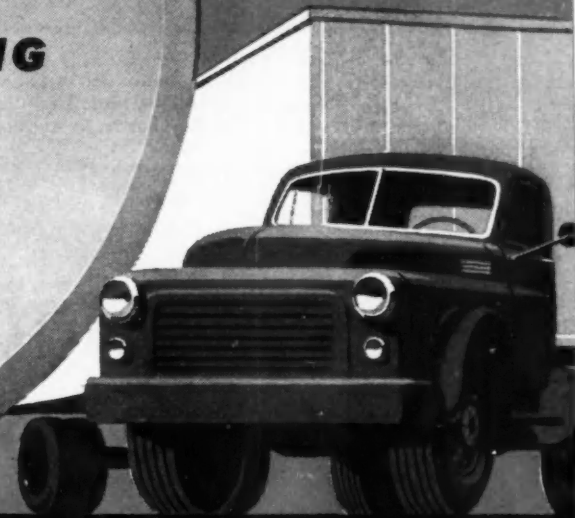
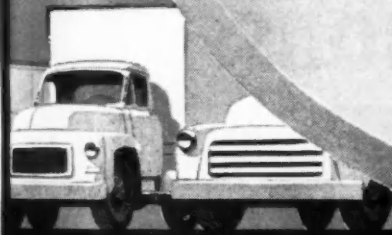
Truck operation based that Hydrovac puted leader braking. An manufacturer discovering

BENDIX

Bendix power

STEERING AND BRAKING

*Makes Truck Operations
Easier, Safer,
More Economical*

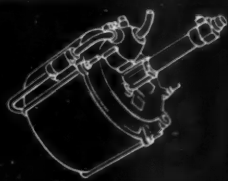


Today's most wanted power features for cars and trucks



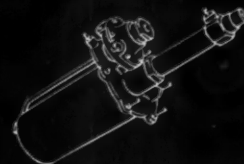
Bendix POWER steering

Here is an efficient, easy to install power steering unit that simplifies production line installation. Because Bendix Power Steering is of the linkage type, it may be adapted to any manufacturer's model without extensive engineering changes in present steering designs. Meet the increasing demand for power steering more efficiently and more economically with Bendix Power Steering.



Bendix HYDROVAC POWER brake

With over four million in use, the Bendix Hydrovac is by all odds the world's most widely used power brake for commercial vehicles. This overwhelming preference for Hydrovac is a result of sound engineering design, exceptional performance, low original cost and minimum service upkeep. Make the industry's choice your choice, specify Hydrovac for all your commercial vehicles.



Bendix AIR-PAK* POWER brake

With one simple compact unit, Bendix Air-Pak combines all of the well-proven advantages of hydraulic brake actuation with an air brake system. An important advantage of Air-Pak is that brakes can be applied by foot power alone when braking is required before air pressure builds up or if it should fail for any reason. For faster, better controlled air-hydraulic power braking, specify Air-Pak.

Truck operators know from actual experience based on millions of installations that Hydrovac* and Air-Pak are the undisputed leaders in their fields of power braking. And—more and more truck manufacturers and truck operators are discovering the outstanding efficiency

and economy of Bendix* Power Steering. Yes—"Bendix Power," whether measured in terms of individual power devices or considered in terms of unmatched engineering and manufacturing facilities, makes truck operations easier, safer and more economical.

*REG. U.S. PAT. OFF.

**Bendix
Products
Division**

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May, 1954

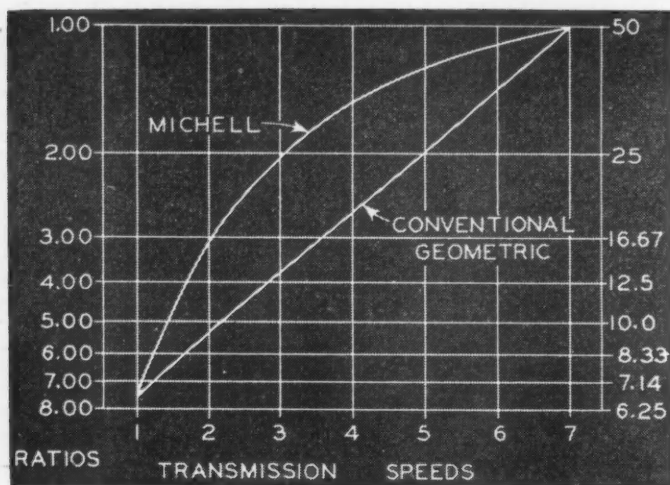


Fig. 1. Above. The presently accepted ideal of geometric progression of ratio intervals is not entirely sound as is shown in Mitchell's graph above. Fig. 2. Right. The same curves restated in tabular form to make comparison easier

| Mitchell | | Geometric | | Modern Duplex | |
|----------|-------|-----------|------|---------------|------|
| Ratios | Mph | Ratios | Mph | Ratios | Mph |
| 1.00 | 50 | 1.00 | 50 | 1.00 | 50 |
| 1.10 | 45.5 | 1.40 | 35.7 | 1.28 | 43 |
| 1.25 | 40 | 1.96 | 24.6 | 1.63 | 30.3 |
| 1.50 | 33.3 | 2.75 | 18.2 | 2.09 | 23.8 |
| 2.00 | 25 | 3.85 | 12.9 | 2.60 | 19.2 |
| 3.00 | 16.67 | 5.39 | 9.3 | 3.34 | 14.9 |
| 7.55 | 6.62 | 7.55 | 6.62 | 4.35 | 11.5 |
| | | | | 5.59 | 8.4 |
| | | | | 8.05 | 6.2 |
| | | | | 10.34 | 4.8 |

By Merrill C. Horine

Consulting Engineer
Mack Mfg. Co.

Automatic Transmissions: IF—HOW—WHEN?

Here's a round up of possibilities with pros
and cons of various designs outlined briefly

UNDER the stern lash of keen competition, straitjacket legislative restrictions, high taxes and the demands of labor, and because the operating standards of truck operators are continually being raised, there are those who believe that present transmission types have about run their course and that new and radical types must be developed to meet the demands of the not-to-distant future.

If one were to start with a clean sheet of paper and no deterrent of unamortized tools, the first step should be a careful survey of the requirements to be met and an appraisal of what science and invention have to offer. These appear to be the objectives:

In conventional transmissions, range of torque multiplication and

range of gear-ratios are synonymous; but this is not necessarily true of transmissions operating on other than the principle of meshing gears. The range required will depend upon four things: the gross weights to be moved, the net engine horsepower available, the rpm at which maximum torque and peak horsepower, respectively, are delivered, and the nature of the terrain to be negotiated. The greater the gross pounds per horsepower, the broader the range of ratios must be; while the greater the spread in rpm between torque and horsepower peaks, the narrower it may be.

Fastest Ratio

The fastest ratio, in connection with the proper final drive ratio,

must be such as will provide not less than the maximum mph which the power-to-weight ratio makes possible. This is not just the mathematically apparent speed; but that which can actually be attained on level concrete. At the same time it must not be such as to subject the driveshaft to rotative speeds beyond safe limits for universal joints, for driveshaft balance and rear axle driving pinion size.

To provide grade ability for the steepest grades anticipated, the slowest ratio must be adequate. This is usually slower than ordinarily required for starting. At the Annual Meeting of the SAE in Detroit, recently, Mr. W. E. Michell of the Spicer Division, Dana Corp., presented a paper giving the results of careful research as to the ratio requirements of future transmissions, taking into account the present trend toward greater horsepower, the unlikelihood of material increase in gross weights (TURN TO PAGE 124, PLEASE)

duplex
Mph

50
43
30.3
23.8
19.2
14.9
11.5
8.4
6.2
4.8

Sealed Power KromeX

Piston Ring Sets bring letters
like these from fleet owners
and garage men!

"Start easier,
run cooler"

"We've been using Sealed Power KromeX Ring Sets ever since they've been on the market, in a good many cars. We've had very satisfactory service from them, and NO failures. The overhauled cars with Sealed Power KromeX Ring Sets start easier and run cooler than those with standard rings. We are very pleased with Sealed Power KromeX Ring Sets."

*F. H. Stuart, Stuart & Pagan Garage
Pueblo, Colorado*

"We recommend
KromeX on every job"

"We have been using Sealed Power KromeX Ring Sets for over a year in all kinds of cars and trucks and in every installation have had complete satisfaction. We replaced rings in a 1950 Mercury with 65,000 miles on it, with cylinders tapered and worn. The KromeX Ring Set seated quickly and now has well over 70,000 more miles on it, still getting good gas and oil mileage. We recommend Sealed Power KromeX Ring Sets on every job."

*Joe Locario, Owner
Southwest Motors, Houston, Texas*

"Results have been
outstanding"

"Since we have started to use Sealed Power KromeX Ring Sets in our cab fleet, some of our re-ring jobs have been driven over 88,000 miles and still have satisfactory oil control. We installed KromeX Ring Set in a 1950 cab with .023 cylinder taper seven weeks ago. There was no break-in problem and oil rate is one quart to 800 miles for 5700 miles, very satisfactory for a second re-ring job. Our results with KromeX Ring Sets have been outstanding."

*John E. Titus, Shop Superintendent
Los Angeles, California*

"Well worth small
additional cost"

"We have found Sealed Power KromeX Ring Sets to be very satisfactory and have had no failures or complaints of oil consumption during the break-in period. After explaining to our customers that KromeX gives so many more thousand miles of service with less friction and cylinder wear, we have experienced no difficulty in convincing them to pay the small additional cost for a better ring set."

*B. L. Bradford, Bradford Garage
Continental, Ohio*

Factory seated
for fast break-in!



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW TRUCKS!

BEST IN OLD TRUCKS!

Sealed Power Motor Parts—The Heart of the Engine

• Rings, Pistons, Pins, Sleeves, Valves, Water Pumps

Free

PUBLICATIONS

FOR YOUR CONVENIENCE USE THE POSTCARD ON PAGE 86

L1. 1953 Accident Statistics

This annual report of street and highway accident data has come to be a standard item as a working tool for fleet safety men. Each year they look forward to this report on the past year's accident facts and the colorful way they are presented.

This issue, the 20th such report, compares the record for 1953 to 1952 in the usual highly interesting manner. Featured this year are a series of humorous safety cartoons by the country's leading cartoonists.

The report includes detailed data on types of accidents resulting in injury and in death, driver actions resulting in accidents, pedestrian actions resulting in accidents, age of drivers in accidents, operating experience and sex of drivers in accidents, types of vehicles involved in accidents, mechanical condition of vehicles involved in accidents, weather and road conditions prevailing in accidents, days and time of accident occurrence, and direction of travel of vehicles involved in accidents.

Bright spot in the report says that commercial vehicles were involved in 19.9 of fatal accidents and 10.8 of non-fatal accidents in 1953 as compared to 21.5 of fatal accidents and 11.7 of non-fatal accidents in 1952. The data also shows a similar reduction in actual number of accidents for commercial vehicles.

For your copy of this interesting and valuable report, circle L 1 on the postcard on page 86.

L2. Hydraulic Brake Fluid Booklet

This pocket book-size, 16-page booklet is a brief, well-illustrated discussion of hydraulic brake fluid characteristics. It opens with a brief description of hydraulic brake operation, including three diagrammatic views: (1) the system, (2) what happens when the foot pedal is depressed and (3) master cylinder construction.

Main section of the book includes discussion of the effect of new brake engineering on brake fluids, dangers in using poor brake fluids, characteristics of a good brake fluid, instructions on how to check, drain, flush, refill and bleed hydraulic brakes, and a short

summary of SAE hydraulic brake fluid specifications.

For your copy of this hydraulic brake fluid booklet, circle L 2 on the postcard on page 86.

L3. Mail Hauling Data

This comprehensive, 48-page report on how, where and why trucks can haul mail economically presents the case attractively and in an easy-to-read manner.

It is a report that every fleet operator should have. For those interested in hauling mail, it includes several operating tips. For other fleets, it is another excellent source of facts on how trucks serve the public and, in this case, how they can save the taxpayer real dollars.

Prepared by the Independent Advisory Committee to the Trucking Industry (ACT), this statement of the case for truck mail hauling, needs to be told the tax-paying public by fleet users. Start the ball rolling in your area by circling L 3 on the postcard on page 86.

L4. Driver Manual

This is a 64-page, 23-section driver manual covering all phases of commercial vehicle operation and designed to fit in the driver's hip pocket. Presented in handy, easy-to-understand question and answer style, it presents the facts on safe and efficient truck operation.

A special feature of the manual is its close correlation with ICC safety regulations. Where necessary, the brief answer to a specific question is followed by the exact, appropriate text of the regulations.

Through special arrangement, you can get a single copy of this manual and information on obtaining additional copies for your drivers by circling L 4 on the postcard on page 86.

L5. Public Relations Guide

Reprints of the public relations guide, "Trucks and the Roads They Use," appearing on pages 71-78 of this issue are available. To obtain a copy of this study of truck-highway relationships, circle L 5 on the postcard on page 86.

Fleetman's Library

Recent publications of interest to fleet operators for which a charge is made and new catalogs, data sheets and fleet experience reports from manufacturers . . .



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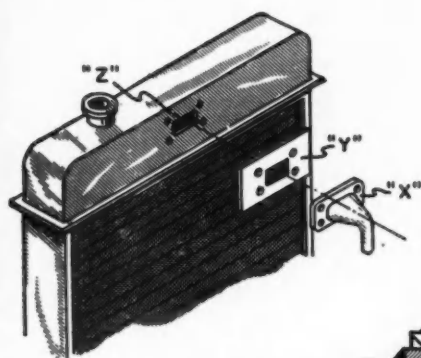
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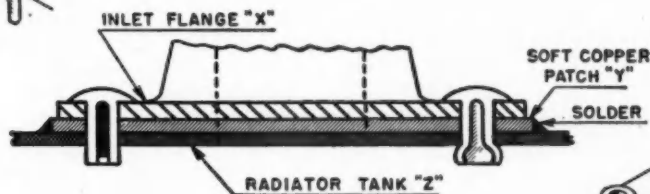
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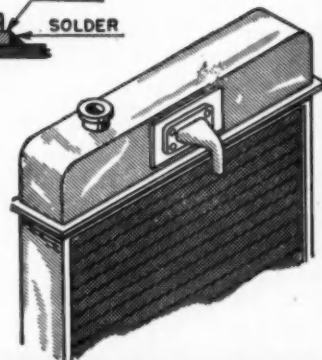


A. EXPLODED VIEW



SOFT COPPER
PATCH "Y"
SOLDER

B. ASSEMBLED



BLUEPRINT FOR SIMPLIFIED FASTENING

You can repair radiator tank inlets faster with Du Pont Industrial Explosive Rivets

Whether repairs involve "blind," "tight-corner" or open-seam fastening—you can make 'em quicker with DuPont Industrial Explosive Rivets. Cracked radiator tank inlets are a good example. This "blind" job could be a tough one, but here's all it takes with Du Pont fasteners:

1. Simply remove old inlet flange.
2. Clamp soft copper patch ("Y") and new inlet flange ("X") against tank ("Z"). Drill holes for 5/32" or 3/16" brass Explosive Rivets of brazier head-type (determine proper grip required by adding thicknesses of flange, patch and tank).
3. Insert Rivets and set with heated riveting iron. Then solder assembly.

Fastening couldn't be easier or quicker! When you apply heat to Rivet head, shank expands almost instantly, forming a smooth, barrel-

shaped head at shop end of Rivet . . . locking parts in place (second diagram). No after-finishing required. Helps you produce strong, road-ready assemblies fast. In addition, Explosive Rivets make fastening a one-man job. You work *only* from head side of Rivet, setting one right after the other. Bucking bar's "out"!

So to save time on many types of repair jobs, use Du Pont Industrial Explosive Rivets in your shop. See how quick and easy fastening can be! For complete details, contact your nearest jobber or write: E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

DU PONT INDUSTRIAL EXPLOSIVE RIVETS

A Product of Du Pont Explosives Research



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

1954 New Truck Registrations by Makes by States*

| STATE AND MONTH | Autocar | Chevrolet | Diamond T | Dodge | Ford | G.M.C. | International | Mack | Reo | Studebaker | White | Willys | All Others | Total |
|----------------------|---------|-----------|-----------|--------|--------|--------|---------------|------|-----|------------|-------|--------|------------|---------|
| Alabama | Feb. | 475 | 1 | 115 | 497 | 103 | 88 | 1 | 1 | 10 | 15 | 9 | 1 | 1,316 |
| 2 Mos. | | 837 | 1 | 179 | 799 | 172 | 173 | 7 | 2 | 23 | 37 | 14 | 2 | 2,246 |
| Arizona | Feb. | 138 | 3 | 48 | 140 | 55 | 33 | 1 | 2 | 6 | 4 | 7 | 3 | 438 |
| 2 Mos. | | 277 | 4 | 85 | 274 | 108 | 75 | 1 | 3 | 10 | 5 | 18 | 8 | 869 |
| Arkansas | Feb. | 407 | 3 | 62 | 451 | 131 | 64 | 2 | | 16 | 12 | 7 | 1 | 1,156 |
| 2 Mos. | | 889 | 4 | 154 | 929 | 312 | 175 | 3 | 1 | 34 | 13 | 18 | 1 | 2,513 |
| California | Feb. | 3 | 1,627 | 11 | 408 | 1,457 | 498 | 268 | 9 | 40 | 17 | 110 | 54 | 4,903 |
| 2 Mos. | 14 | 3,330 | 26 | 862 | 2,866 | 1,005 | 633 | 16 | 12 | 89 | 38 | 182 | 119 | 9,190 |
| Colorado | Feb. | 218 | 1 | 62 | 211 | 101 | 60 | 5 | 1 | 6 | 5 | 30 | 12 | 712 |
| 2 Mos. | 1 | 562 | 3 | 122 | 453 | 175 | 167 | 9 | 7 | 21 | 6 | 57 | 23 | 1,605 |
| Connecticut | Feb. | 117 | 5 | 38 | 86 | 50 | 49 | 11 | 11 | 7 | 3 | 18 | 6 | 401 |
| 2 Mos. | 18 | 270 | 6 | 96 | 219 | 83 | 87 | 10 | 13 | 21 | 10 | 19 | 22 | 862 |
| Delaware | Feb. | 80 | | 23 | 42 | 17 | 23 | 1 | | 3 | | 2 | 1 | 192 |
| 2 Mos. | | 143 | | 41 | 97 | 49 | 35 | 5 | | 6 | | 5 | 5 | 387 |
| Dist. of Columbia | Feb. | 42 | 3 | 9 | 28 | 6 | 15 | 1 | 1 | 1 | 16 | 1 | 3 | 125 |
| 2 Mos. | | 95 | 3 | 19 | 52 | 17 | 30 | 3 | | 1 | 19 | 2 | 4 | 246 |
| Florida | Feb. | 1 | 564 | 4 | 143 | 624 | 178 | 140 | 26 | 25 | 49 | 92 | 13 | 1,885 |
| 2 Mos. | 2 | 1,118 | 10 | 266 | 1,187 | 304 | 312 | 60 | 36 | 54 | 115 | 25 | 3 | 3,589 |
| Georgia | Feb. | 1 | 609 | 5 | 122 | 625 | 145 | 192 | 7 | 17 | 41 | 16 | 5 | 1,804 |
| 2 Mos. | 2 | 1,376 | 6 | 328 | 1,402 | 357 | 401 | 22 | 22 | 94 | 46 | 46 | 7 | 4,108 |
| Idaho | Feb. | 134 | 1 | 37 | 97 | 65 | 41 | | | 5 | | 19 | 5 | 404 |
| 2 Mos. | | 249 | 1 | 71 | 189 | 113 | 71 | | | 11 | | 38 | 6 | 750 |
| Illinois | Feb. | 1 | 1,044 | 53 | 260 | 990 | 442 | 14 | 9 | 57 | 44 | 49 | 26 | 3,239 |
| 2 Mos. | 3 | 2,095 | 91 | 497 | 1,906 | 447 | 820 | 27 | 13 | 88 | 92 | 69 | 50 | 6,198 |
| Indiana | Feb. | 2 | 486 | 5 | 130 | 515 | 112 | 236 | 1 | 2 | 30 | 50 | 15 | 2,607 |
| 2 Mos. | 5 | 1,243 | 18 | 313 | 1,125 | 273 | 547 | 15 | 21 | 75 | 104 | 40 | 35 | 3,814 |
| Iowa | Feb. | 551 | 7 | 105 | 495 | 107 | 253 | 5 | 3 | 28 | 12 | 16 | 4 | 1,616 |
| 2 Mos. | | 990 | 9 | 176 | 808 | 190 | 434 | 5 | 3 | 47 | 23 | 25 | 10 | 2,890 |
| Kansas | Feb. | 430 | 1 | 55 | 412 | 132 | 123 | 4 | 2 | 15 | 10 | 8 | | 1,192 |
| 2 Mos. | | 798 | 3 | 113 | 728 | 223 | 244 | 4 | 2 | 32 | 15 | 19 | 1 | 2,182 |
| Kentucky | Feb. | 497 | 3 | 83 | 468 | 141 | 114 | 3 | | 15 | 8 | 17 | 6 | 1,353 |
| 2 Mos. | 1 | 1,006 | 6 | 153 | 879 | 234 | 253 | 8 | 7 | 25 | 21 | 45 | 21 | 2,859 |
| Louisiana | Feb. | 579 | 2 | 95 | 547 | 144 | 141 | 5 | | 13 | 15 | 13 | 1 | 1,554 |
| 2 Mos. | | 1,223 | 5 | 223 | 1,157 | 302 | 294 | 6 | 1 | 51 | 22 | 81 | 1 | 3,338 |
| Maine | Feb. | 70 | | 21 | 71 | 25 | 27 | 1 | 1 | 3 | | 22 | 1 | 245 |
| 2 Mos. | | 185 | 2 | 54 | 174 | 61 | 54 | 5 | 2 | 13 | 4 | 28 | 4 | 588 |
| Maryland | Feb. | 1 | 338 | 1 | 78 | 225 | 54 | 5 | 2 | 7 | 3 | 3 | 8 | 782 |
| 2 Mos. | 2 | 538 | 1 | 168 | 395 | 80 | 138 | 13 | 12 | 11 | 13 | 13 | 14 | 1,386 |
| Massachusetts | Feb. | 235 | 3 | 75 | 292 | 64 | 78 | 10 | 2 | 13 | 21 | 28 | 11 | 648 |
| 2 Mos. | 5 | 462 | 9 | 140 | 543 | 119 | 132 | 26 | 18 | 27 | 58 | 52 | 31 | 1,625 |
| Michigan | Feb. | 1,118 | 17 | 256 | 1,124 | 210 | 143 | 9 | 13 | 21 | 40 | 35 | 33 | 3,034 |
| 2 Mos. | 8 | 2,205 | 25 | 537 | 2,137 | 477 | 307 | 17 | 32 | 51 | 62 | 68 | 60 | 5,986 |
| Minnesota | Feb. | 441 | 2 | 75 | 486 | 93 | 204 | 7 | 2 | 18 | 8 | 14 | 10 | 1,340 |
| 2 Mos. | | 777 | 2 | 155 | 738 | 185 | 335 | 12 | 9 | 28 | 11 | 41 | 32 | 2,325 |
| Mississippi | Feb. | 552 | | 66 | 495 | 183 | 115 | 1 | | 14 | 2 | 4 | 1 | 1,433 |
| 2 Mos. | | 997 | | 130 | 889 | 296 | 214 | 4 | | 30 | 3 | 10 | 2 | 2,575 |
| Missouri | Feb. | 5 | 635 | 3 | 107 | 517 | 182 | 146 | 4 | 2 | 29 | 11 | 9 | 1,666 |
| 2 Mos. | 5 | 1,453 | 5 | 286 | 1,249 | 433 | 401 | 15 | 7 | 70 | 32 | 31 | 22 | 4,008 |
| Montana | Feb. | 105 | | 17 | 86 | 43 | 50 | 1 | | 10 | 1 | 26 | | 339 |
| 2 Mos. | | 242 | 2 | 54 | 199 | 103 | 110 | 2 | | 22 | 1 | 74 | 2 | 811 |
| Nebraska | Feb. | 297 | 8 | 53 | 330 | 88 | 121 | 5 | | 11 | 8 | 27 | 5 | 955 |
| 2 Mos. | 2 | 558 | 13 | 107 | 593 | 161 | 233 | 8 | 1 | 17 | 13 | 61 | 13 | 1,780 |
| Nevada | Feb. | 47 | | 13 | 47 | 16 | 16 | 2 | | 4 | | 6 | | 151 |
| 2 Mos. | | 78 | | 17 | 73 | 24 | 23 | 2 | | 7 | | 11 | | 235 |
| New Hampshire | Feb. | 57 | | 12 | 46 | 20 | 14 | 1 | 1 | 4 | | 18 | 2 | 175 |
| 2 Mos. | 2 | 125 | | 33 | 83 | 40 | 31 | 7 | 1 | 8 | | 31 | 5 | 371 |
| New Jersey | Feb. | 13 | 494 | 9 | 112 | 485 | 170 | 49 | 5 | 25 | 30 | 8 | 36 | 1,591 |
| 2 Mos. | 19 | 972 | 21 | 259 | 899 | 333 | 237 | 95 | 13 | 59 | 75 | 31 | 85 | 3,158 |
| New Mexico | Feb. | 155 | | 17 | 126 | 72 | 33 | 1 | | 9 | 5 | 11 | | 429 |
| 2 Mos. | | 378 | 2 | 41 | 259 | 114 | 73 | 23 | 2 | 15 | 10 | 26 | 1 | 943 |
| New York | Feb. | 10 | 972 | 16 | 297 | 1,091 | 253 | 335 | 15 | 16 | 41 | 40 | 51 | 3,143 |
| 2 Mos. | 18 | 1,928 | 30 | 658 | 1,857 | 453 | 712 | 86 | 38 | 76 | 135 | 154 | 109 | 6,250 |
| North Carolina | Feb. | 499 | 3 | 98 | 440 | 141 | 125 | 19 | 4 | 22 | 25 | 24 | 5 | 1,406 |
| 2 Mos. | 3 | 1,098 | 17 | 205 | 941 | 309 | 254 | 35 | 5 | 51 | 68 | 50 | 7 | 3,042 |
| North Dakota | Feb. | 82 | | 14 | 119 | 21 | 77 | | | 6 | | 8 | | 327 |
| 2 Mos. | | 203 | | 39 | 234 | 61 | 153 | 1 | | 10 | | 17 | 1 | 723 |
| Ohio | Feb. | 6 | 877 | 3 | 243 | 995 | 188 | 293 | 8 | 20 | 36 | 75 | 45 | 2,785 |
| 2 Mos. | 9 | 1,831 | 14 | 485 | 1,889 | 342 | 584 | 30 | 35 | 70 | 137 | 58 | 34 | 5,458 |
| Oklahoma | Feb. | 1 | 602 | | 61 | 492 | 166 | 133 | 2 | 3 | 18 | 12 | 8 | 1,493 |
| 2 Mos. | 1 | 986 | | 133 | 803 | 265 | 214 | 6 | 5 | 26 | 19 | 13 | 7 | 2,478 |
| Oregon | Feb. | 2 | 207 | 3 | 59 | 213 | 97 | 73 | | 10 | 5 | 36 | 15 | 729 |
| 2 Mos. | 2 | 367 | 4 | 114 | 391 | 159 | 133 | 14 | | 13 | 10 | 66 | 20 | 1,283 |
| Pennsylvania | Feb. | 8 | 912 | 9 | 353 | 885 | 233 | 470 | 32 | 12 | 43 | 71 | 48 | 3,143 |
| 2 Mos. | 17 | 1,761 | 14 | 710 | 1,607 | 388 | 795 | 63 | 24 | 78 | 143 | 99 | 114 | 5,813 |
| Rhode Island | Feb. | 7 | 51 | 1 | 25 | 82 | 9 | 7 | 4 | 1 | 4 | 7 | 1 | 169 |
| 2 Mos. | 10 | 97 | 9 | 44 | 109 | 19 | 30 | 6 | 1 | 10 | 12 | 2 | | 348 |
| South Carolina | Feb. | 1 | 294 | 1 | 50 | 206 | 41 | 46 | 12 | 9 | 7 | 9 | | 647 |
| 2 Mos. | 1 | 630 | 2 | 156 | 600 | 119 | 103 | 21 | | 27 | 22 | 14 | 2 | 1,697 |
| South Dakota | Feb. | 133 | | 25 | 135 | 43 | 74 | | | 7 | 2 | 17 | | 438 |
| 2 Mos. | | 221 | | 44 | 211 | 71 | 139 | | 1 | 12 | 4 | 36 | 2 | 741 |
| Tennessee | Feb. | 411 | | 73 | 417 | 109 | 82 | 3 | 1 | 8 | 12 | 8 | | 1,124 |
| 2 Mos. | | 912 | 2 | 174 | 856 | 203 | 161 | 11 | 2 | 14 | 21 | 14 | 5 | 2,375 |
| Texas | Feb. | 7 | 1,857 | 4 | 254 | 1,725 | 409 | 391 | 12 | 4 | 80 | 72 | 62 | 4,854 |
| 2 Mos. | 17 | 3,896 | 11 | 593 | 3,495 | 826 | 849 | 28 | 10 | 124 | 148 | 95 | 10 | 10,102 |
| Utah | Feb. | 74 | | 14 | 50 | 30 | 22 | 2 | | 4 | | 6 | | 205 |
| 2 Mos. | | 160 | 3 | 37 | 124 | 62 | 65 | 5 | | 5 | 2 | 12 | 7 | 482 |
| Vermont | Feb. | 46 | | 19 | 63 | 17 | 14 | 2 | | 4 | 3 | 9 | 3 | 180 |
| 2 Mos. | | 83 | 1 | 27 | 105 | 30 | 32 | 6 | | 4 | 3 | 26 | 4 | 322 |
| Virginia | Feb. | 5 | 384 | | 94 | 404 | 101 | 91 | 17 | 7 | 27 | 14 | 23 | 1,173 |
| 2 Mos. | 6 | 789 | | 199 | 771 | 181 | 181 | 28 | 9 | 41 | 34 | 35 | 10 | 2,283 |
| Washington | Feb. | 123 | 2 | 54 | 173 | 90 | 48 | 3 | 1 | 7 | 1 | 15 | 4 | 821 |
| 2 Mos. | | 257 | 3 | 134 | 312 | 150 | 117 | 5 | 3 | 10 | 1 | 27 | 17 | 1,036 |
| West Virginia | Feb. | 1 | 183 | 2 | 53 | 139 | 54 | 32 | 1 | 8 | 5 | 20 | 10 | 686 |
| 2 Mos. | 4 | 389 | 5 | 104 | 296 | 109 | 76 | 4 | 1 | 12 | 11 | 45 | 15 | 1,070 |
| Wisconsin | Feb. | 1 | 401 | 2 | 98 | 393 | 92 | 180 | 1 | 6 | 15 | 12 | 12 | 1,210 |
| 2 Mos. | 1 | 795 | 6 | 193 | 729 | 164 | 329 | 3 | 9 | 41 | 27 | 38 | 28 | 2,360 |
| Wyoming | Feb. | 104 | 1 | 16 | 87 | 27 | 32 | 1 | | 4 | 1 | 26 | 1 | 309 |
| 2 Mos. | | 209 | 3 | 44 | 178 | 64 | 73 | 2 | | 9 | 1 | 35 | 2 | 620 |
| Total February, 1954 | 89 | 20,723 | 197 | 4,808 | 19,954 | 5,571 | 5,997 | 356 | 191 | 809 | 772 | 1,104 | 475 | 60,848 |
| Total February, 1953 | 128 | 24,817 | 227 | 7,536 | 15,936 | 6,498 | 7,685 | 390 | 263 | 2,105 | 835 | 1,601 | 597 | 68,616 |
| Total 2 Months, 1954 | 181 | 42,037 | 402 | 9,748 | 38,781 | 10,744 | 12,079 | 793 | 372 | 1,673 | 1,631 | 2,076 | 1,005 | 121,542 |
| Total 2 Months, 1953 | 221 | 49,991 | 474 | 15,191 | 34,264 | 13,566 | 15,422 | 880 | 546 | 4,315 | 1,615 | 3,465 | 1,272 | 141,222 |

* Data from R. L. Polk & Co.

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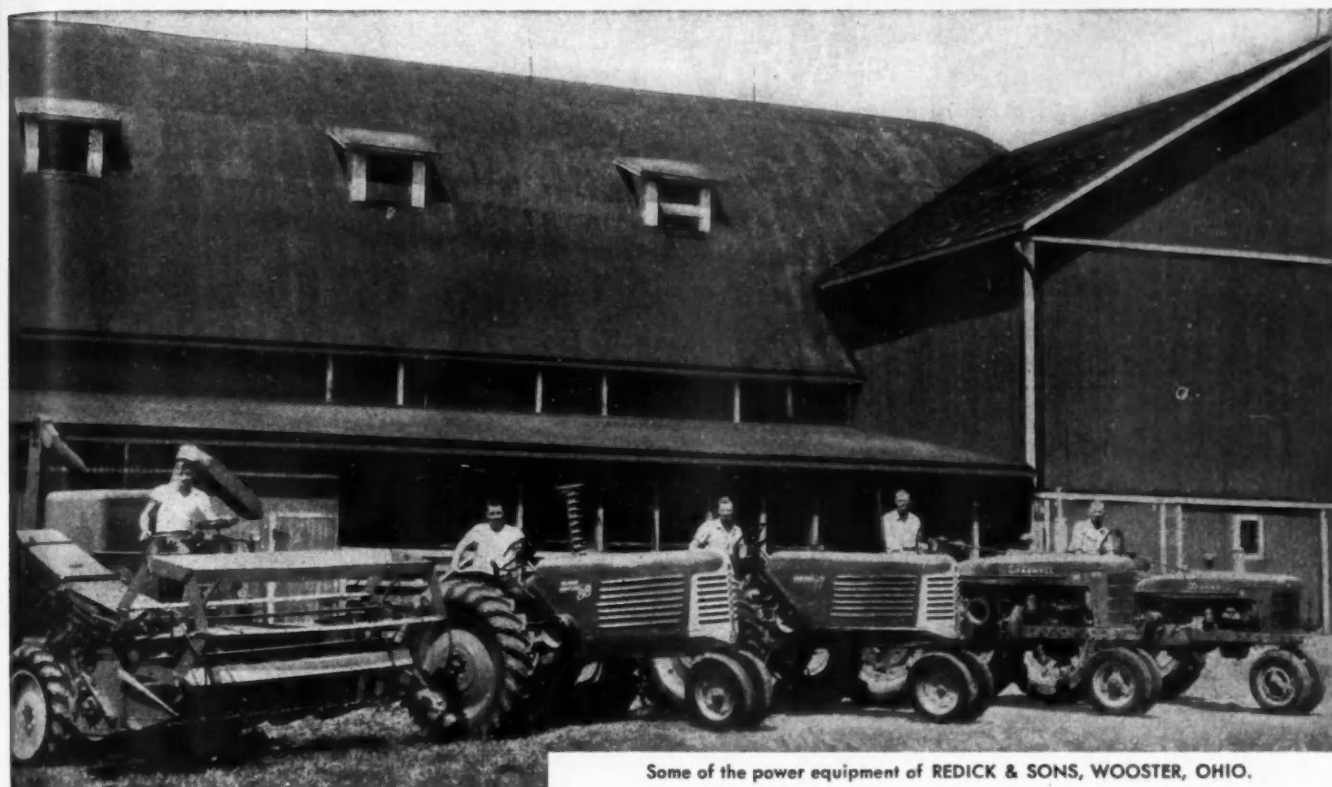
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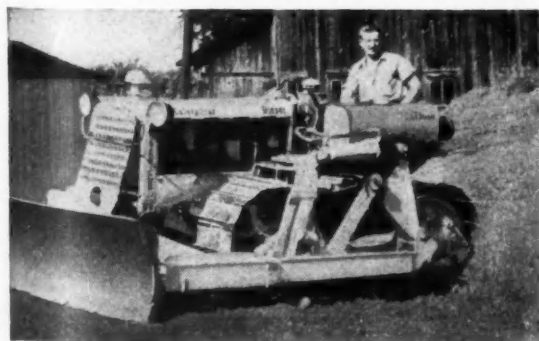
COMMERCIAL

A STORY FOR EVERY MAN WITH ROLLING STOCK



Some of the power equipment of REDICK & SONS, WOOSTER, OHIO.

SIX TROUBLE-FREE YEARS WITH CITIES SERVICE C-300 OIL!



FOR THE MAN WHO GROWS FOOD. For their trucks, cars, tractors and other power equipment, including diesel above, the Redicks use only Cities Service C-300 Motor Oil.



FOR THE MAN WHO TRANSPORTS FOOD. Albert Herda, trucker extraordinary, uses Cities Service C-300 Motor Oil in year 'round operation between Minnesota and Alaska!

You may say, "What's a farm story doing in this magazine?" . . . and it's a good question Mr. Fleet Owner, or Mr. Contractor . . . a good question until you remember that much of the equipment the Redicks will use to farm 1000 acres is the same kind of equipment you use. Diesels, gasoline engines, separate power units, all with a thousand finely machined, intricate pieces of mechanism that demand the finest lubrication in the world. **THAT'S WHAT THE REDICKS GET** and that's what you can get in all your equipment with Cities Service Heavy Duty C-300 Motor Oil.

This great Cities Service Motor Oil serves bus fleet, truckers, farmers and construction crews throughout most of the country. Try C-300 in your operation and check mileage, wear and performance. Call the Cities Service Office nearest you or write to Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

Top Octane Sky Chief

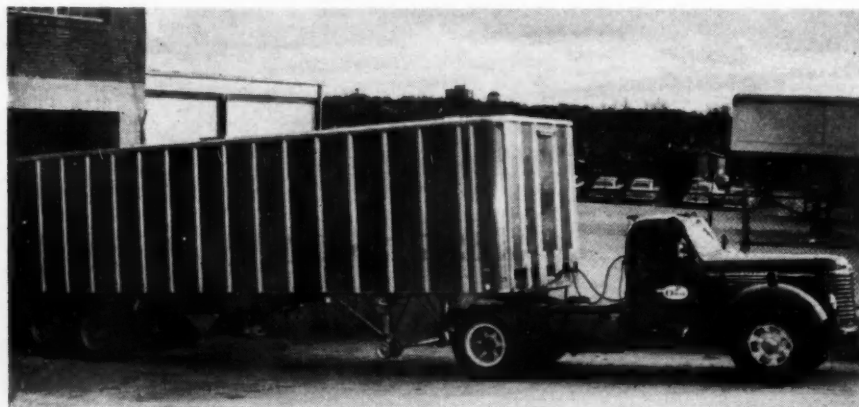


Dr. Wayne E. Kuhn, manager, Technical and Research Division, The Texas Co., New York City, reports on results of comparative tests of the company's new premium fuel, known as "Top Octane Sky Chief", at the press conference held recently to announce the new gasoline. He reported on 2 million miles of testing the new fuel. In one test, held in Texas, 26 new cars ran for a total of 700,000 miles, averaging 800 miles a day at an average speed of 65 mph, before being taken apart for inspection.

Look for Reo's Baby

A 238-pound "baby" born in 1906 is being sought by officials of Reo Motors, Inc. Readers who might know its whereabouts are urged to contact the company at 1331 South Washington Ave., Lansing, Mich. The baby is a Reo car, a miniature replica with all the details of the original gasoline model displayed by the company in 1906.

"Airslide" Trailer



Trailmobile Co., Cincinnati, Ohio, recently delivered the first "Airslide" bulk flour trailer in the country to Omar Inc. for use at the firm's bakery in Omaha, Nebr. The roof has aluminum outer sheets and is equipped with a catwalk for easy access and filling. Three 20-in. diameter aluminum domes with pressure seals on the top are removable for filling operations.

Truck Production Down

Truck production so far this year—up to the middle of last month—reached 336,308 vehicles, down 19 per cent compared to the same period in 1953.

Truck Safety Improved

Reports from two sources indicate that 1953 was a safer year for truck operation than 1952. The ICC report for 1953 shows an 11 per cent decline in the number of fatal accidents involving motor carriers as compared to 1952. In its annual accident fact booklet, The Travelers Insurance Co. reports that commercial vehicles were involved in 19.9 per cent of total fatal accidents and 10.8 per cent of all non-fatal accidents in 1953 as compared to 21.5 per cent of fatal accidents and 11.7 per cent of non-fatal accidents in 1952. (See page 96, this issue, for information on how to obtain a copy of the Travelers booklet.)

It was not an entirely rosy picture however. The ICC report also shows that the total number of commercial vehicle accidents increased 2 per cent and the number

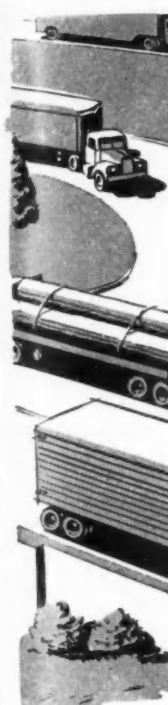
of accidents involving damage of \$100 or more increased 4 per cent. Total number of reportable motor carrier accidents climbed from 31,334 in 1952 to 31,920 last year and the number of accidents in which personal injuries were incurred increased from 11,215 to 11,237. The amount of property damage loss in all the reportable accidents was \$34,700,000 last year as compared to \$34,449,000. The statistics cover over-the-road vehicles of both passenger and property carriers.

Fleet Contest Winners

Winners in the National Truck Safety Contest, sponsored by ATA, and in the National Tank Truck Safety Contest, sponsored by the National Tank Truck Carriers Conference, were announced last month. Tank Truck contest winners were awarded at the National Tank Truck Carriers Conference Annual Meeting in Cincinnati, Ohio, May 6-8. ATA contest winners will receive their awards in the same city on May 13 at the ATA Council of Safety Supervisors Spring Meeting.

First place winners in the ATA contest are: (winners in the NTTC contest appear on page 152, this issue) Carolina Delivery Service Co., Charlotte, N. C.; Silver Fleet Motor Express, Louisville, Ky.; Buckingham Transportation, Rapid City, S. D.; Pacific Intermountain Express, Oakland, Cal.; Dakota Film Service, Sioux Falls, S. D.; Whitfield Transportation, El Paso, Texas; Davidson Transfer & Storage Co., Baltimore, Md.; Central Truck Lines, Tampa, Fla.; Monarch Motor Freight Co., Watervliet, N. Y.; Inland Motor Freight, Spokane, Wash.; Tarbert Trucking, Muncie, Ind.; Dixie Highway Express, Meridian, Miss.; W. S. Duckworth Transport, Post, Texas; Waccamaw Oil Transport Co., Wilmington, N. C.; Caddell Transport Corp., Colorado City, Texas; Bice Truck Lines, Laurel, Mont.; Redwing Carriers, Tampa, Fla.; Dan Dugan Oil Transport

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FLEET SERVICE

is more profitable with **Schrader**
TIRE SERVICE



A. SCHRADER'S SON

Division of Scovill Manufacturing Company, Incorporated
470 Vanderbilt Avenue, Brooklyn 38, N. Y.

Schrader
REG. U. S. PAT. OFF.

DOWNTIME COSTS MONEY. Catch flats in your service shop where they don't cost as much as when the load's down on the highway. Gauge and record air pressure of all tires regularly. Most flats give a slow-leak warning signal that can *only* be found by accurate gauge readings. A comparison of readings will point out slow leaks.

Certify the accuracy of your gauging-inflating equipment with a Schrader 8106B Truest Special Gauge. For all your tire inspection work use the Schrader 7188BH All-Purpose Service Gauge. When tire maintenance calls for tube repair and valve replacement jobs, do 'em fast and sure with a Schrader Electric Vulcanizer. And always use genuine Schrader Tire Valves. Order them from your supplier today.

7188BH All-purpose
Service Gauge



Standard
Replacement
Valves

8601 Valve and Tube Vulcanizer

FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

6804

How to Design Reefers Better

Continued from Page 85

Equally important is the provision of a "gutter" along the bottom of each sidewall to permit the air to move downward between lading and sidewalls and carry it forward to the return air duct. Dead air space is insufficient. The air must be moving.

Proper stripping includes the

following, as illustrated in Figs. I, II, and III:

1. Sidewalls — Equip with vertical spacers, 1 in. depth minimum. The distance between the spacers, and the distance between the bottom of the spacers and the surface on which the cargo rests should

be the maximum practical consistent with the smallest packages to be transported. In general, 12 to 15-in. centers and 8 in. above the cargo floor are practical. The tops of the spacers should extend to at least 6 to 8 inches below the ceiling. Fig. I.

2. Rear doors — Equip with vertical spacers in similar manner, 2 in. depth minimum. The bottoms should extend down as far as practical. The tops may be on a level with the other spacers.

3. Floor — Floor racks of proper design are better stripping than grooved floors. The conventional grooved floor with 1 by 1-in. lands and grooves is entirely inadequate for severe requirements, such as frozen foods in warm weather.

- a. Floor racks — A minimum of 2 in. free space is required for air circulation under the cargo. Construct racks with stringers running longitudinally under the cross slats to provide maximum passage for air to move from rear to front. Provide maximum distance practical (at least 3 in.) between walls and nearest stringers to form the "gutter" referred to above. Space cross slats $\frac{3}{4}$ in. apart to supplement gutter capacity. Position rear racks to preclude interference with vertical spacers on rear doors in closed position. This can be conveniently accomplished by butting the racks against

(TURN TO PAGE 104, PLEASE)

use your head

....increase your

pay loads with

HOMAN

PRECISION-BUILT

LANDING GEARS

Available in aluminum or steel and in different models to suit your specific operation, Homan landing gears are adaptable to any make, size or style of trailer. Write for complete details and specifications today.

Add extreme lightness to a super-strong landing gear, and you get bigger, heavier pay loads in your trailers. Homan landing gears are expertly designed, precision built for longer trouble-free service. With their 2-speed reduction unit, you save time and handling effort. Completely sealed lubrication insures maximum ease of operation under all conditions.

For Fast
Dependable Service
Ship by Truck
Trailer



HOMAN

AND COMPANY, INC.

READING - CINCINNATI 15, OHIO

ESTABLISHED 1847

International COE



These short-wheelbase International R-212 refuse collection trucks of cab-over-engine design are used by Chicago's Bureau of Sanitation. With 150-in. wheelbase, they have an 18-yd capacity. The units, powered by International Super Red Diamond 450 engines, have vertical stacks, overdrive transmission, double reduction rear axle, full air brakes, and increased cooling capacity.



Draw to these three...

THEY'RE ALL JALTEN!

J&L's New JALTEN series enables you to select low-alloy, high-strength steel in the following combinations of advantages:



High strength, good formability and fabricating—good resistance to low temperature impact.



High strength, moderate forming—improved resistance to atmospheric corrosion.



High strength—improved resistance to abrasion.

Remember to specify JALTEN High Tensile Steel for

- HIGH STRENGTH • RESISTANCE TO CORROSION
- GOOD FORMABILITY • RESISTANCE TO ABRASION



Jones & Laughlin
STEEL CORPORATION — Pittsburgh



The data you want
is in this book:

- Chemical Properties of Jalten
- Mechanical Properties of Jalten
- Jalten Equivalents
- Jalten Application Data

Jones & Laughlin Steel Corporation
Dept. 432, 3 Gateway Center, Pittsburgh 30, Pa.

Please forward a copy of your booklet, Jalten low-alloy, high-strength steel.

Name _____

Company _____

Address _____

... Design Reefers Better

Continued from Page 102

blocks of suitable size located on the floor in the corners. Fig. II.

- b. Grooved floors — In the event grooved floor is to be fabricated locally with wood strips, or new equipment is to be ordered with metal grooved floor, specify as il-

lustrated in Fig. III so as to provide a gutter by design along the sidewalls. In the event the trailer concerned is already equipped with grooved floor of the WRONG design (Fig. III), it is necessary to use floor racks of the recommended design (Fig. II) in addition, in order to maintain the temperature of the cargo along the sidewalls. This applies especially to critical loads that must be

maintained at zero deg. Designers of grooved floors should "open up the floor" by retaining the 1-in. wide land and increasing the width and height of the groove to at least 1½ in.

Design Does Work

Here are typical results obtainable by use of the design features recommended above. The column headed "spread" refers to lading conditions at unloading time and reflects the differential between the top center and floor front locations.

| From | To | Spread in deg F | Trip Hours | Avg. Outdoor Temperature in deg F |
|---------|---------------|------------------|------------|-----------------------------------|
| Florida | New York City | 2 ¹ | 63 | 83 |
| Florida | New York City | 2 ² | 50 | 83 |
| Florida | Chicago | 0.5 ² | 56 | 74 |

¹—Mechanical unit modified with return air duct.
²—Blower-type dry ice unit with built-in air return from floor level.

I have advocated these interior design features since 1946 when I applied them to reefer vans of a large western fleet. The U. S. Department of Agriculture has conducted many tests recently on highway reefers with various interiors and methods of refrigeration to demonstrate the benefits of proper design. Reports based on these tests are available for the asking from that agency. Several national associations concerned with efficient highway transportation of perishables not only endorse but encourage adoption of proper interiors. A few progressive operators have already redesigned accordingly.

Competition Stepping In

With respect to frozen foods, the trucking industry has lost considerable tonnage to the railroads because the new refrigerated rail car outperforms the average highway reefer van temperaturewise. Shippers naturally select equipment, when available, which is capable of holding the temperature down in the entire lading. A highway reefer of proper design will meet those requirements.

The time is gone when an operator can afford to use the absence of claims as the gage for acceptable performance. The time is here when the highway reefer must be right to get the business. A more aggressive educational effort by those concerned is required now.

END

Please Resume Reading Page 86

COMMERCIAL CAR JOURNAL, May, 1954

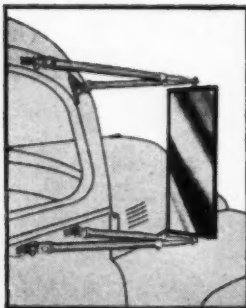
Better Hindsight!

DIETZ

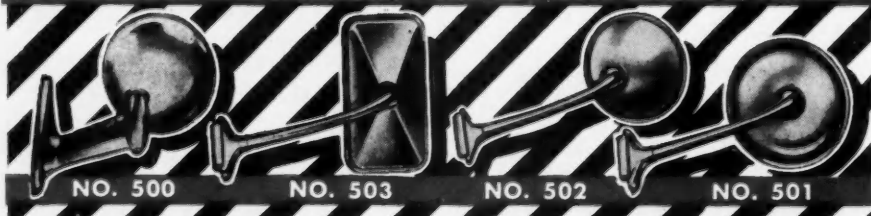
NO. 78 WESTERN STYLE TRUCK MIRROR

You'll show good foresight too, when you put this great, new DIETZ Western Style Truck Mirror in service to make the road safer for your drivers and your cargo. Provides sure, steady rear vision, holds position despite vibration or jarring. Four heavy duty Extension Arms, adjustable from 16" to 27". Big 6" x 16" Hammer-tone Grey finish Mirror Head. Easily replaceable clear Plate Glass Mirror mounted in rubber shock cushion. Fits all trucks, new or old, either side.

The DIETZ complete Mirror Line includes many other Truck Mirrors as well as the Passenger Car Mirrors shown below ... all carefully designed for easy mounting, long life and safer vision. Write for Catalog Pages and prices today.



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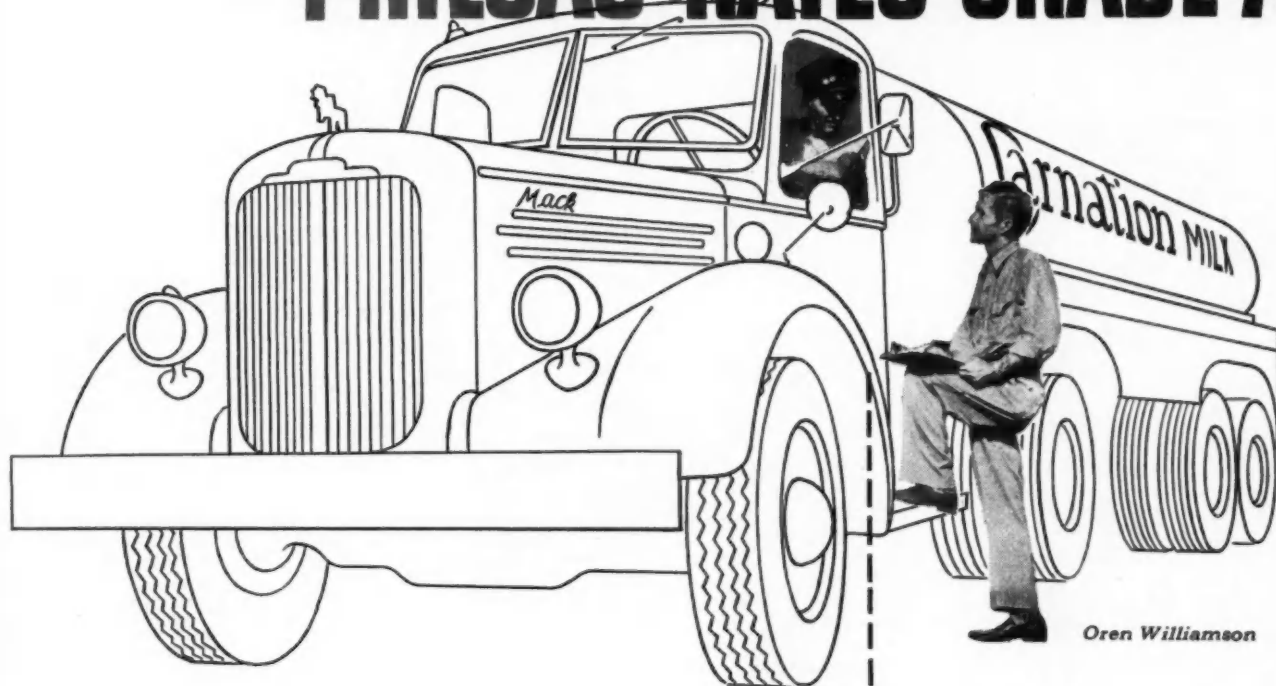
Of their
have each
No wonder
Says Willi
... need
Philgas
trucks, bu
internal co
you can g
for full in

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AMARILLO, TEX
CHICAGO, ILL
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COMMERCIAL

WITH CARNATION MILK PHILGAS* RATES "GRADE A"



Oren Williamson

Carnation's veteran garage foreman doesn't hesitate. Oren Williamson flatly states, "I've used a lot of motor fuels . . . there's none finer than Philgas." Williamson speaks with plenty of experience. Since 1938, Carnation has used Philgas to operate trucks of their Mt. Vernon, Mo. plant. Hauling fresh milk, trucks travel up to 12 hours a day, average 1,200 miles a week over the Ozark mountains. A look at the records shows why Williamson likes Philgas.

Of their present 11 trucks, five are 1947 Mack EN 510's that have each gone over 400,000 miles without a major overhaul. No wonder that Carnation relies on Philgas to power their fleet. Says Williamson, "With Philgas our engines cost less to operate . . . need less maintenance . . . last the life of the trucks."

Philgas has proven itself as an efficient, economical fuel in trucks, buses, construction equipment, taxicabs . . . wherever internal combustion power is needed. Investigate. Find out how you can get added power, added savings with Philgas. Write for full information.

CHECK THESE PHILGAS ADVANTAGES

- ✓ Burns completely with no oil dilution—less contamination.
- ✓ Low fuel cost—lowers operating costs.
- ✓ No cylinder wall washing—lower cylinder wear.
- ✓ Longer ring and valve life.
- ✓ Cuts maintenance—thousands of miles more before overhaul.
- ✓ Quieter, no knocking—no smelly fumes or exhaust smoke.



*Philgas is the Phillips Petroleum Company trademark for its high quality LP-Gas or bottled gas (butane, propane).

PHILLIPS PETROLEUM COMPANY

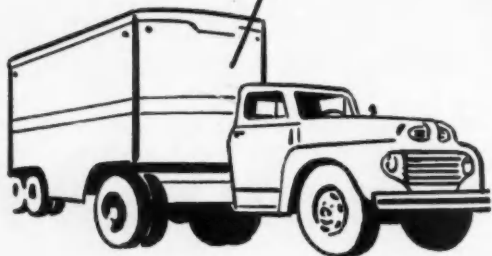
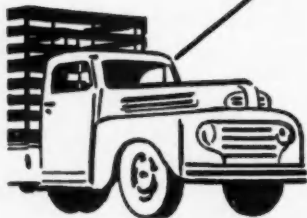
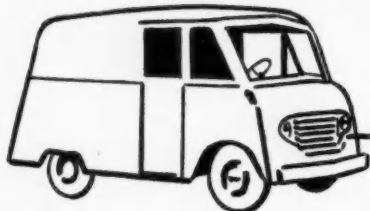
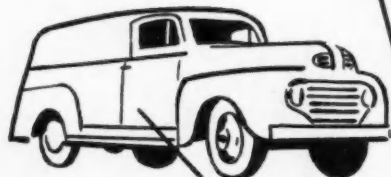
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Fleetman's Library

Continued from Page 96

that are analyzed to determine the cause and the way to avoid repetition. It was written by Willard Lord, retired fleet safety director for Atlantic Refining Co., Philadelphia, and an "unusually active member" of Private Truck Council of America's Highway Safety Committee. Single copies of the book may be ordered for \$1.00 each and information obtained on quantity prices by writing J. Willard Lord, Newton Rd., Ithaca, Pa.

Public relations guide for truck operators entitled, "Put Public Opinion to Work for You!" is a brand new booklet especially written for truck fleet operators that outlines a workable fleet public relations program. It is well worth the price of 25¢ a copy and is available from Ohio Trucking Assn., 3310-LeVeque-Lincoln Tower, 50 West Broad St., Columbus 15, Ohio.

State sizes, weights, taxes and fees are covered in this 272-page book. The data, including permissible vehicle combinations, is the latest available up to March 1, 1954. It is divided into two sections: (1) Sizes and Weights, and (2) Taxes and Fees. In each section, all 48 states and the District of Columbia are listed alphabetically and the data presented in uniform tabular form for each state. There is also a table of basic gasoline tax rates by states and a special section on interstate, Canadian and Mexican reciprocity. Copies are available at \$3 each by writing Commerce Clearing House, Inc., at 522 Fifth Ave., New York 36, N. Y.; 214 North Michigan Ave., Chicago 1, Ill., or 1329 E St., N. W., Washington 4, D. C. Ask for "State Motor Carriers Handbook, Sizes and Weights, Taxes and Fees, as of March 1, 1954."

Clutchless "Hydratork" drive for materials handling equipment and lift trucks is described in this 8-page booklet available by writing Clark Equipment Co., Battle Creek, Mich.

Diesel engine applications for a wide variety of fleet work are described and fully illustrated in the current issue of "The Dependable Diesel, Vol. III, No. 3" which you can get by writing Cummins Engine Co., Inc., Columbus, Ohio.

Automotive lift desirable characteristics are discussed in a booklet available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price is 10¢. Ask for No. C18.276:142-51, "Automotive Lifts."

END

Please Resume Reading Page 98

COMMERCIAL CAR JOURNAL, May, 1954

cuts road delays cuts belt costs

Like Be-Mac Transport Co., Inc., whose letter is shown here...fleet operators from coast to coast have stated *in writing* that the Gates "T" Belt—specially engineered for trucks and buses—makes them money in two important ways:

1.

Road delays caused by belt failure are practically eliminated...trucks keep on schedule...shipments arrive on time...net operating time is kept UP—revenues and profits are increased.

2.

Belt replacement costs are cut way down by the longer service life to the Gates "T" Belt. Actually—according to Fleet Managers, Purchasing Agents, Maintenance Superintendents—belt replacement costs are cut from 50% to 80%.

With other costs rising, there is more reason than ever to use cost-cutting, money-making Gates "T" Belts. There are Gates Belt Jobbers in every distributing center who can supply you promptly with the belts you need. The Gates Rubber Co., Denver, U.S.A.—*World's Largest Maker of V-Belts*.

Be-Mac



TRANSPORT CO., INC.

Gates Rubber Company
Denver 17,
Colorado

GENERAL OFFICES
14TH AND O FALLON STREETS
ST. LOUIS 6, MO.

Gentlemen:

After exhaustive tests on all makes of belts, we want to tell you that we have decided on Gates. Our cost of operation is at least 50% less and our road failures have been completely eliminated.

We would also like to advise you that your Vibra-flex hose has completely stopped all radiator breakage due to excessive vibration.

Yours very truly,

BE-MAC TRANSPORT CO., INC.

Bob Lemen

Bob Lemen
Superintendent of Maintenance

BL:ep

◀ tough, multiple-ply cover developed by world's largest maker of V-Belts

◀ built with rayon cords—the same kind used to increase life of Truck Tires

Gates

**TRUCK
& BUS
V-BELT**

*Specially Engineered
FOR TRUCK AND BUS USE*

143-T

For Truck and Bus Use Only REG. U.S. PAT. OFF.

**Look for
this T***

To get 50% to 80% more service out of fan belts look for this "T" on both label and belt. The "T" is your insurance of a belt specially engineered for Trucks and Buses.

*Reg. U.S. Pat. Off.

GATES TRUCK & BUS V-BELTS

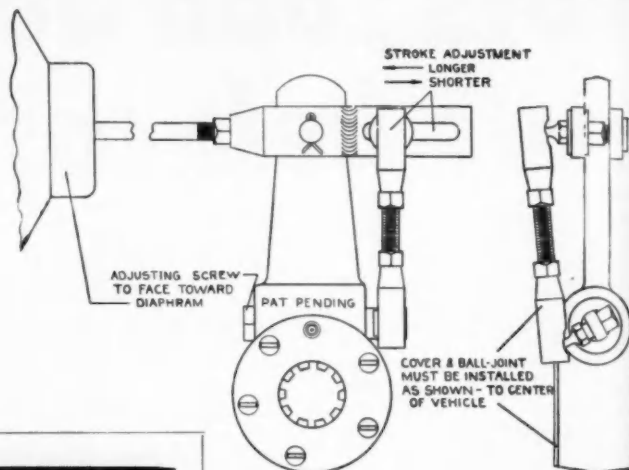


The Mark of Specialized Research

Automatic Brake Adjuster Reduces Maintenance

THIS brake adjuster, made by Truckville Brake Corp., Truckville, Pa., takes-up the brake automatically as lining wear or drum expansion occurs.

This is accomplished by a mechanical linkage connected to a set of ratchet gears, one of which is connected on the end of the slack adjuster worm. The required length of the diaphragm push rod stroke is determined. By tightening



the nut in the stroke adjustment slot, as shown, the length of travel is fixed.

As long as the brakes operate within this predetermined stroke, the "Sure Brake" adjuster operates like conventional manual slack adjusters.

However, when it becomes necessary for the push rod to travel beyond this predetermined stroke, this new unit automatically adjusts the stroke back to its predetermined length. The adjustment takes place when the braking load is off the braking system.

.003 in. Compensation

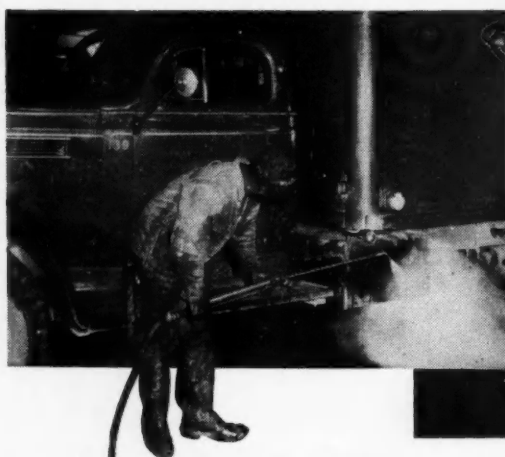
EACH automatic adjustment made by "Sure Brake" is equal to .003 in. wear of the brake lining, so as to keep the brake load equally distributed at all times.

Since the linkage on the adjuster is connected directly to the diaphragm push rod, it operates only with diaphragm action, thus lessening adverse effect of any vibration or bounce.

Back-off adjustment of the "Sure Brake" adjuster is equally automatic. It is not necessary to manually back-off the adjuster. By applying the brakes a few times, the "Sure Brake" adjuster on each brake automatically returns the diaphragm push rod to the predetermined stroke length.

 FIRST CHOICE OF FLEET OPERATORS ...

**for fast
economical
maintenance**



NEW MODEL "1211"—One of 80 different models and types of Jenny for your needs.

New Model "1211"
HYPRESSURE
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STEAM CLEANER

For fast, economical vehicle maintenance, Model "1211" Hypressure JENNY is the ideal tool for fleet service shops. Equipped with automatic electric spark ignition, this big, 120 gals.-per-hour-capacity unit, is ready to clean in less than 90 seconds from a cold start. There is no lost "warm-up" time, no delay making adjustments every time you use it. Just flip a switch, and JENNY is ready to go.

Model "1211" will save up to 40% of valuable man-hours in your shop by removing speed-retarding muck and grease from equipment before repairs . . . keep motors, chassis, springs and undergear free of road dirt . . . flush grime and grit from lubrication fittings for fast, efficient, careful servicing. And JENNY will keep your shop equipment, tools, floors, lifts, pits, walls, etc. clean for more efficient operation, 10 times faster and cheaper, than you can do it by hand. On its big 16 inch rubber-tired wheels JENNY will roll anywhere you want to use it.

 MAIL THE COUPON TODAY for complete information.

Send me FREE BOOKLET "1001 Ways to Extra Profits with Hypressure Jenny"

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HOMESTEAD VALVE MANUFACTURING COMPANY

"Serving Since 1892"

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Terminal Manager: "Boy, there will be a number of high officials visiting us from the home office a little later this morning. I want you to stand at the front door and call the guests' names as they arrive."

Office Boy: "Oh, goody, I'll like that. But who keeps me from getting fired if I call the General Traffic Manager an old Snizzlepuss?"

New Britain Tools that Make **HARD** Money and **EASY** Work for Mechanics !

Here's the mechanic's Tool Line with everything you want . . . rugged power — sturdy, compact strength — handsome design — and the long, dependable service-life that's *easy* on your pocketbook.

NEW BRITAIN Hand Tools are designed *by* mechanics — *for* mechanics. Give your hands the **POWER** to lick the toughest nut-turning problems. Finest alloy steel, carefully heat treated. Perfect balance and comfortable grips. Precision-made for perfect, no-slip fit on the nut. And what's more, the complete NEW BRITAIN Line provides you with the *right* Tool for every job.

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- R-173 Universal Cylinder Ridge
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- NB-43 Reversible Ratchet
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- SE-1 Stud Extractor
- NFV-618 V-8 Connecting Rod Socket
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New Britain

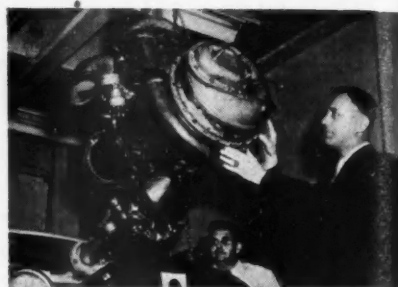
GREATER STRENGTH • BETTER FIT
THE NEW BRITAIN MACHINE CO. • NEW BRITAIN, CONN.

HAND TOOLS

"Regenerator" Ups Efficiency in Chrysler Gas Turbine Engine

A GAS TURBINE engine capable of operating a current model automobile in city or highway traffic has been developed by Chrysler Corp., Detroit. It is now undergoing road tests at the company's 4000-acre proving grounds.

Chrysler says the gas turbine's fuel economy equals that of conventional automobile engines, its exhaust is cooler than that discharged by the average car, and its performance is far beyond that of comparable piston engines.



Regenerator Does the Trick

Key to the Chrysler-designed turbine engine's fuel economy and cool exhaust is a new heat exchanger or "regenerator," which utilizes most of the heat discharged as waste by conventional gas turbines.

In the Chrysler Regenerative Gas Turbine this exhaust heat is transferred to the incoming flow of fresh air and so becomes available as useful energy to drive the wheels of the car.

The essential problem was to develop a regenerator that would transfer tremendous quantities of heat at very high efficiencies, and still operate within the confines of a passenger car engine compartment. For this reason Chrysler designed the test turbine and its regenerator unit on the scale of the Plymouth engine compartment. The turbine engine is now operating in a 1954 Plymouth Belvedere sport coupe.

The heat-conserving function of the turbine's regenerator also cools down the turbine's exhaust to temperatures lower than the exhaust from today's cars.

Not Ready for Use

It was emphasized, however, that development of the Chrysler regenerative gas turbine does not mean that such an engine is ready for general use. Commercial production of gas turbines for passenger cars, Chrysler says, depends on the long-range solution of many complex metallurgical and manufacturing problems. Also, limited supply of such strategic materials as nickel, cobalt, tungsten, molybdenum and chromium currently prohibits the use of gas turbines in automobiles except on an experimental basis.

Lighter, Fewer Parts

The Chrysler gas turbine is almost 200 lb lighter, and has less than a fifth as many major moving parts as a piston engine of (TURN TO PAGE 112, PLEASE)

THE BIEDERMAN TRUCK



*An All-Star Truck
Constructed of All-Star Units
Doing an All-Star Job Since 1920*

DEALERS: Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

Biederman Trucks win by performance. Inquiries regarding dealerships solicited.

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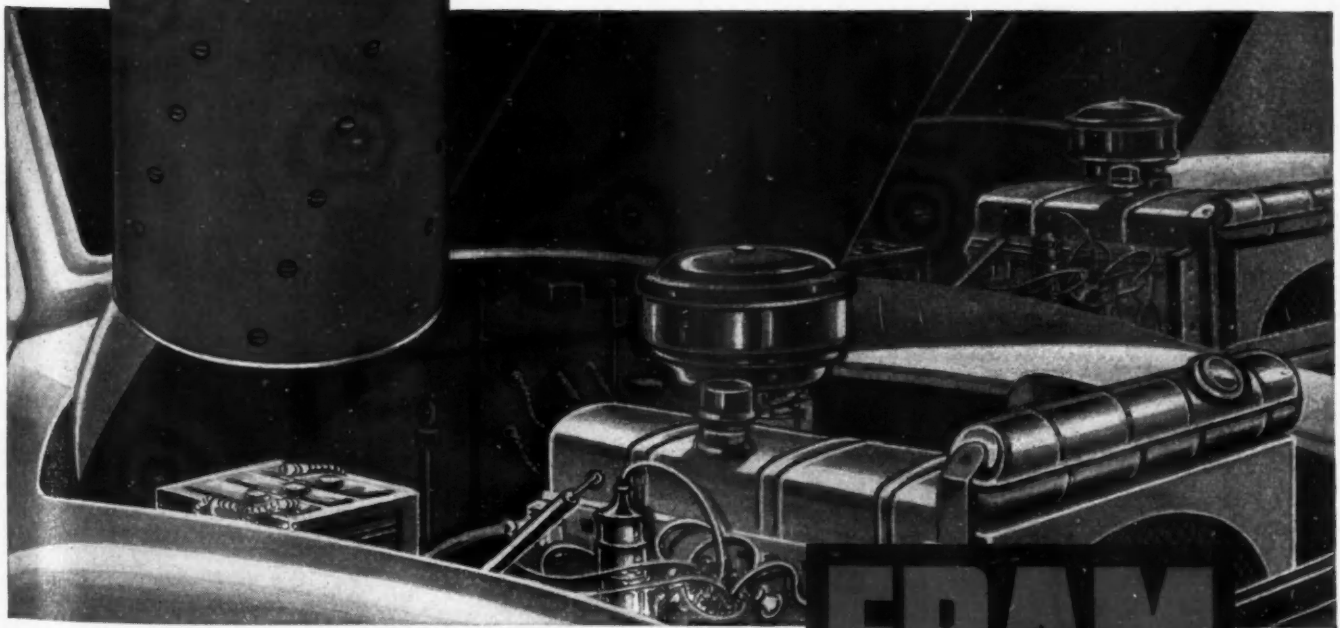
BIEDERMAN MOTORS CORPORATION
CINCINNATI 14, OHIO

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cuts fleet costs 3 ways



- 1** FRAM Cartridges cut maintenance and repair costs —add extra mileage between engine overhauls!
- 2** FRAM Cartridges save you money because they last longer—give your engine *heavy-duty* protection.
- 3** FRAM gives you *complete* engine protection—oil, air, fuel and water filters guard your engines at every vital point.



To collect these long run savings for your fleet, see your FRAM Wholesaler today!

FRAM
OIL • AIR • FUEL • WATER
FILTERS

FRAM CORPORATION, Providence 16, R. I. Fram Canada Ltd., Stratford, Ontario.

COMMERCIAL CAR JOURNAL, May, 1954

8 PLACES WHERE YOU CAN CUT COSTS ON YOUR FLEET



| | PROBLEM | RESULT | CAUSE |
|---|-----------------------------------|--|---|
| 1 | Generators burn out. | DOWNTIME. Expensive repairs and replacements. Idle drivers. | Failure of regulator most common cause. |
| 2 | Sealed beam lamps fail too often. | Heavy replacement costs. Delays. Possible wrecks. | Excessive voltage. |
| 3 | Batteries go dead. | Excessive maintenance and replacement costs. Vehicles tied up. | Overcharging is frequent cause. |
| 4 | Wiring burns up. | Risk of fire. Vehicle tied up. Expensive repairs. | Regulator did not limit current. |
| 5 | Distributor points get pitted. | Poor engine performance. More maintenance costs. | Voltage too high. |
| 6 | Regulators fail. | DOWNTIME. Damage to other units. Expensive repairs and replacements. | Built to a price. Arcing at points. |
| 7 | Radio vibrators stick. | Mobile radios dead. Vehicles tied up. High maintenance. | Voltage too high. |
| 8 | Radio tubes have short life. | Excessive replacement costs. Dead radios. Increased maintenance. | Excessive voltage. |

SOLUTION

Replace with L-N Heavy-Duty Service Regulators . . . the best regulators ever built. Patented, double-contact system holds voltage constant, gives tapered charge. Non-arcng design, easily serviced. Rugged, reliable, accurate L-N Regulators protect *all* electrical units on your fleet, save downtime, cut repair expense.

YOU CAN
RELY ON

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 Send me the complete story on cutting costs with L-N Regulators.
 Name _____
 Company _____
 Address _____
 City _____ State _____

Chrysler Gas Turbine

Continued from Page 110

similar power. The unit together with its set of reduction gears is only 32 in. long, 33 in. wide and 28 in. high.

The gas turbine delivers its highest torque during breakaway from a stationary position. The torque available for acceleration from any given speed within the range of the turbine-powered car is greater than that produced by piston engines and transmissions.

The turbine engine is rated at 120-shaft hp. According to Chrysler, it delivers essentially the same performance at the rear wheels as a 160-hp piston engine with transmission. It is relatively simple to design much more horsepower into the turbine engine whenever it is desired. The real challenge was to design a unit in the horsepower ranges common to most cars used in everyday driving.

Five Major Components

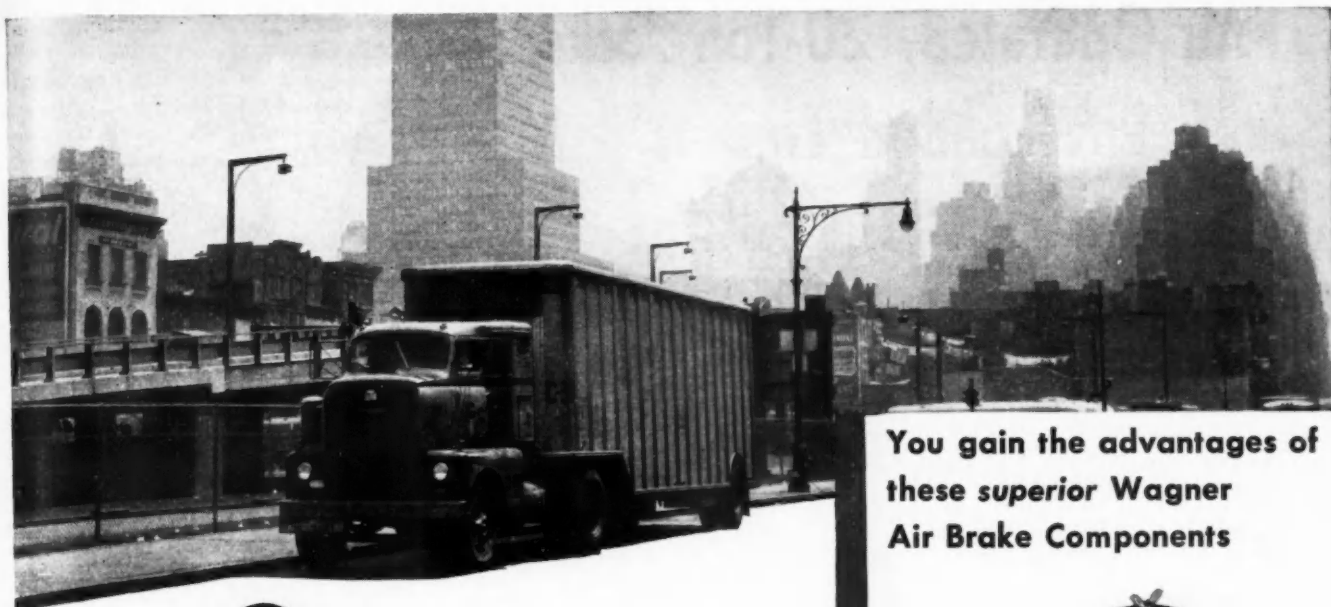
Major components of the Chrysler gas turbine are (1) air compressor unit, (2) a first-stage turbine, which drives the compressor and furnishes power for the accessories, (3) the regenerator, which recovers heat from the exhaust gas to warm up incoming fresh air, (4) the burner or combustion chamber, and (5) a second-stage turbine, which transmits power through a set of reduction gears to the differential and rear wheels.

In the proving grounds tests, the gas turbine burned straight-run gasoline. However, any of a wide range of petroleum fuels may be used, from gasoline to heavy fuel oil.

Since the gas turbine is air-cooled, it requires no radiator or liquid cooling system. The closest thing to a radiator on the Chrysler turbine engine is a small, finned cooling tube for the lubricating oil. This is mounted in the intake air passage.

The gas turbine's electrical system consists of a storage battery, starter-generator, coil, breaker, and a single spark plug—needed only in starting.

The transmission component in the present test model is used for the sole purpose of providing a reverse gear.



Rugged

Wagner® Air Brakes

**provide safe braking...
cut maintenance costs**

Don't risk jeopardizing your fleet operation. Unsafe brakes can cost you pay-load capacity, endanger lives, and threaten customer's cargo.

Safe air brakes are all-important for you to consider in the profitable operation of over-the-road vehicles. Take the advice of thousands of fleet operators who rely on rugged Wagner Air Brakes. They know from experience that Wagner Air Brakes are *safe* air brakes. The millions of safe miles their drivers log every year prove the road-tested dependability of Wagner Air Brakes.

For over-the-road brake economy... for added savings in Preventive Maintenance... equip your fleet with Wagner Air Brakes. It is good business, too, to specify Wagner Air Brakes when ordering new vehicles. Wagner Air Brakes are available as original equipment on all leading trucks and buses.

Get all the facts on Wagner Air Brakes. Send today for your free copy of Wagner Bulletin KU-201—it gives full details and data.



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**You gain the advantages of
these superior Wagner
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• **ROTARY
COMPRESSOR**



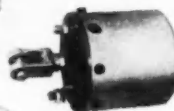
• **RELAY-QUICK RELEASE
EMERGENCY VALVE**



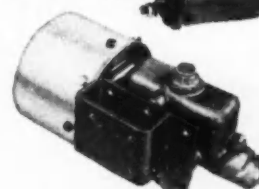
• **FOOT
APPLICATION
VALVE**



• **POWER CYLINDER**



• **POWER
CLUSTER**



• **SLACK
ADJUSTER**



K54-11

Air-Operated, 20-Ton Jacks Lift Loaded Trailers

A 20-TON capacity "Auto-Pneumatic" screw jack made by Duff-Norton Mfg. Co., Pittsburgh, Pa., is operated by a rotary air motor which turns the gears to lift or lower a trailer. The jack

runs on the usual shop compressed air pressures of 80 or 90 lb. It is said to lift a loaded trailer in less than half a minute.

At Spector Motor Service, Chicago, A. L. Springer, director of

fleet maintenance, reports, "With these jacks, one man operating a 'Y' connection can lift the heaviest tandem trailer with a full load in 20 seconds. We figure we save \$1.50 in labor costs every time we lift a trailer."

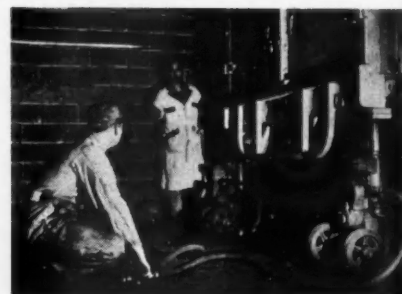
Jack Is Portable

The jack, Model No. 228-R, has solid tire, ball bearing equipped, 10-in. wheels for portability and



rests solidly on a 12-in. base when in use. It stands 28 in. high when closed and weighs 238 lb but can be wheeled about by one man. The jack has a raise of 18 in. and the head is 4 in. in diameter.

The two jacks in use at Spector Motor Service are getting heavy service on a trailer inspection line



where they are used on from 12 to 15 trailers a day. Service men at Spector said the jacks paid for themselves in two and one-half months at this rate of use.

Spector's plans call for using the jacks on all trailer lifting jobs. They include general under carriage inspection, lubrication, tire repairs, under carriage repairs and construction repairs on the trailers.

Other features of the jacks include:

1. An automatic shut-off cuts the air motor off when the lifting standard reaches its maximum height.

2. The control valve on the jack clearly indicates up, down or stop. Once the direction is set, the operator steps back clear of the trailer to the air valve in the hose.

AVOID *Expensive* OVERTIME by Controlling Delays and Idle Periods

THE SERVIS RECORDER
HELPS CORRECT DELAYS
LIKE THESE—

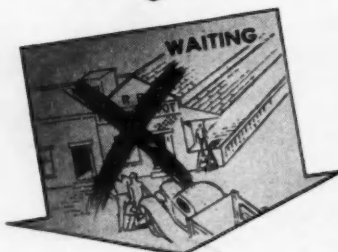


Today more than ever you must watch overtime. Some of it is necessary. *But not overtime caused by needless delays*—the truck standing idle time and again—waiting for the load in the morning for a whole hour—delayed by traffic jams caused by bad routing—held up at the freight station awaiting a shipment, etc.

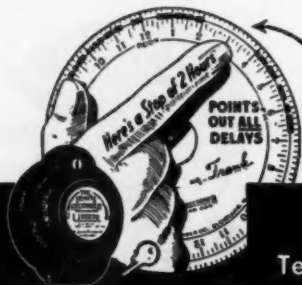


HERE'S THE ANSWER

Reduce these *idle periods* and you reduce overtime. And there's only one way to do it accurately. Install inexpensive Servis Recorders—they show up *all* delays, all day. Write for the full story.



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Prevent this **IDLE TIME**

and you prevent this **OVERTIME**

The Servis Recorder

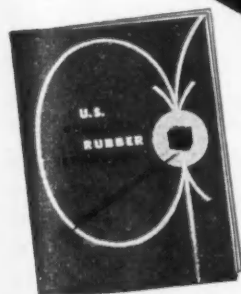
Tells Every Move Your Truck Makes

More DURABLE than any other battery separator...



no wonder the best batteries use

U. S. Peerless MICROPOROUS Rubber Separators!



Write to address below for free copy of informative booklet on the high-performance, low-upkeep U.S. Peerless Rubber Battery Separators.

Battery acid and plate material have a highly corrosive effect on ordinary separators, especially at high temperatures. Charring, pinholing, pitting and disintegration are common results. *But not with U. S. Peerless Microporous Rubber Separators.* These durable, money-saving battery protectors have greater resistance to oxidation than any other known separators. Laboratory and road tests proved this beyond the slightest doubt.

U. S. Peerless Separators are so durable that the plates can never break through them. They will not

get mushy or soft during battery life—will maintain original toughness. They cannot be harmed by battery acid, overcharging, or heat. They deliver 20% faster cranking speed because of high porosity. In cold weather, they deliver 10% more power when needed most. Cost per month is far less for Peerless-insulated batteries than for batteries with ordinary separators. For more mileage per battery dollar, order batteries equipped with United States Rubber Company's Peerless Microporous Rubber Separators.

UNITED STATES RUBBER COMPANY

Electrical Wire and Cable Department • Rockefeller Center, New York 20, N. Y.



COMMERCIAL CAR JOURNAL, May, 1954

Control Tower Keeps Trucks on the Beam

Continued from Page 83

Here exact weights for each axle group are noted on the big scale dial located in the tower office. When satisfied that weights, routings, maintenance reports and other data are in order, the control tower dispatcher signals the

driver for departure, probably feels like using the tower-to-pilot language that opens this story.

With the tailgate of the truck clearing the terminal yard, the dispatcher then "squawk boxes" the clearance to the terminal's



Ringsby's one-man, self-powered trailer washer gives each inbound unit a complete tailgate to kingpin scrubbing

central dispatch office where the movement is then reported to the destination terminal by teletype.

SOP Being Drawn Up

Dispatching procedures used in the terminal's control tower are tied-in with a company-wide standard operating procedure being drawn-up by the fleet's transportation engineer, Richard L. Rickenbacher. Purpose of the manual is to state specifically the best ways to handle each of the many jobs necessary to effect efficient operation of the Ringsby fleet.

Rickenbacher expects to complete the manual by June, already has several sections in use. Gail H. Crawford, fleet executive vice-president, reports that clarification of company procedure, especially in first and second line executive positions, has produced expected results in uniformity of work performance.

Denver Shops

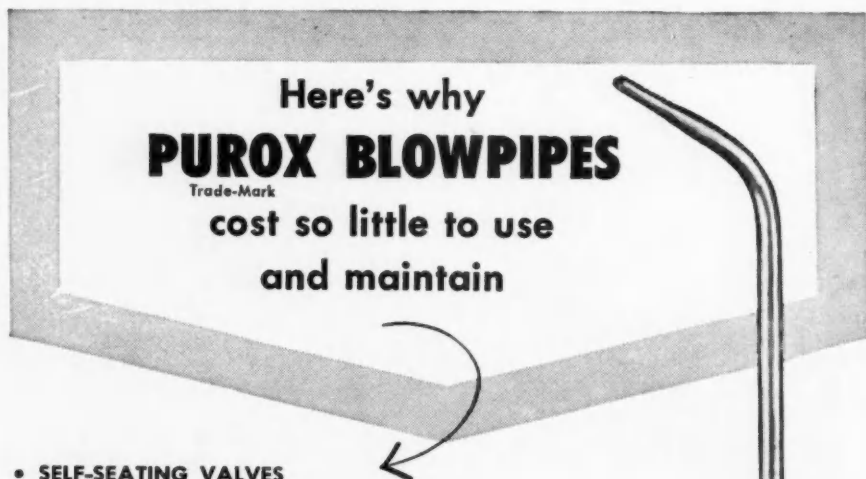
In addition to being the central dispatching point, Ringsby's Denver terminal is also a key maintenance facility. Power units are inspected as they come in and are overhauled here at regular intervals. The shops, watched over by Superintendent of Maintenance J. V. Cantlin, are equipped to handle all major and minor repairs, with the exception of major trailer work.

Ringsby uses tractors in the 200 hp class and has just put into service 30 40-ft, tandem-axle semi-trailers with square front noses to obtain a maximum amount of loading cubage.

END

Please Resume Reading Page 84

COMMERCIAL CAR JOURNAL, May, 1954



• SELF-SEATING VALVES

Reseat scored valves when turned tight.

• RUGGED HANDLE ASSEMBLY

Wear-resistant bronze front body—heavy-walled seamless tubes—pressure forged valve body; all built for long, trouble-free service.

• SLIP-FIT "O" RINGS

Eliminate critical metal-to-metal gas seals. Easy to replace.

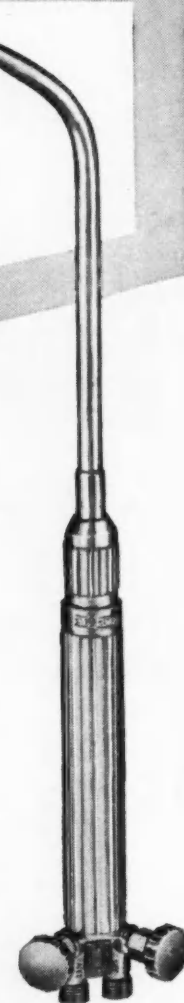
• MIXER IN EACH HEAD

Delivers perfect gas mixture for easiest and best work. New design resists backfires, eliminates burnouts.

• SWAGED, PURE COPPER TIPS

Streamlined gas flow and exceptionally stable flames. Heads snap in and out of handle. No wrench needed.

The PUROX W-202 blowpipe (illustrated) is available with 13 standard welding heads and 3 multiflame heating heads, all of the snap-in type. Ask your LINDE jobber for a demonstration or write for further information. LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, New York. In Canada, DOMINION OXYGEN COMPANY, Division of Union Carbide Canada Limited, Toronto.



The terms "Purox" and "Linde" are registered trade-marks of Union Carbide and Carbon Corporation.

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Worth their weight in bigger payloads



Exclusive Goodyear Bond-a-Coat finish resists corrosion and discoloration, keeps its luster indefinitely.

—Lighter Goodyear Wide Base Rims

It's true. You can carry bigger loads when you use the new Goodyear Wide Base Rims —*they're that much lighter than conventional rims!*

Because of their better design and construction, Goodyear Wide Base Rims permit an increased payload of up to 100 pounds unsprung weight on a tractor-trailer unit.

But that's not all. With these wide base rims you get up to 30% more tire mileage—a fact

proved on trucks and buses in all kinds of service. That's because they provide greater air volume—resulting in less tire heat, fewer tire failures and fewer road delays.

And with all their other advantages, Goodyear Wide Base Rims actually cost less, size for size, than ordinary rims. Get the full story at your nearest Goodyear Rim supplier or write Goodyear, Metal Products Division, Akron 16, Ohio.

GOODYEAR

WIDE BASE RIMS

MORE TONS ARE CARRIED ON GOODYEAR RIMS THAN ON ANY OTHER KIND

**"ALL PERISHABLE PRODUCE
IN EXCELLENT CONDITION**

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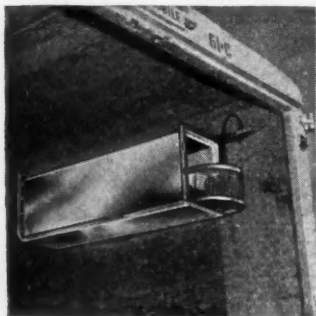


"After successful tests, Foster-Built Dry Ice Bunkers were used exclusively by Colonial Stores' Columbia Fleet for deliveries of all fresh fruits and produce. Our Raleigh, N. C. fleet was also completely converted to this type of equipment. These bunkers, operating on runs of from five to 150 miles, keep our trailers refrigerated so as to preserve all perishable produce in excellent condition from initial loading to final delivery."

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Versatility, dependability,
efficiency, lowest cost —
get them all,
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Low Purchase Price • Dependability

Large and small companies all over America are discovering that Foster-Built Bunkers give better, more reliable load refrigeration—at a cost that saves you *hundreds of dollars per unit* in comparison with mechanical type refrigeration units.

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Rugged, simple design virtually eliminates repair bills. Foster-Built Bunkers have only one moving part—a low-amp fan. Amazingly economical to operate, Foster-Built get the maximum refrigeration per pound of dry ice. Saves up to 25% on dry ice.

Quick, Easy Installation

Placement of four studs and a simple wiring job—Foster-Built are ready. Instantly removable when refrigeration isn't needed, too.

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CCJ-5

Mechanic Training Classes

Continued from Page 79

to handle the foreman's job at Reliable Trucking Co.

His main problem was getting trained mechanics. There were plenty of specialists around, but Reno wanted all-around mechanics and they were at a premium. "I didn't want guys who could just pull out a transmission. I wanted them to be able to overhaul it, too," Reno says.

The situation became so bad that Reno called Joe Batman, secretary-treasurer of Local 35, AFL-Teamsters' Union. Some 500 truck mechanics belong to the local. Reno suggested to Batman that the union establish a school for mechanics. Batman, too, had been toying with the idea of starting a school for several years.

A private school was out of question for the local was too small to support it. Aquilano, Batman and Local President Joe Gunn decided to go to the Cleveland Trade School for help.

Cleveland Trade School is operated by the Cleveland Board of Education and supplies facilities for labor unions to operate classes in which apprentices are taught various trades. There had never been a class for truck mechanics, however.

Trade school officials were in accord with the idea and offered to furnish the classroom and shop but pointed out that the local would have to furnish the teachers. Reno and Harold Algate, one of his employees at Reliable, passed the test and received teaching certificates, and then a committee composed of Reno, Gunn and Algate began sifting candidates for the school.

Most of those that dropped out did so in the first week or two," Reno said. "They thought they were going to come down to the school and play with a bunch of machinery, but when they found there would be some work involved they dropped out."

END

Please Resume Reading Page 80

COMMERCIAL CAR JOURNAL, May, 1954

Axle W

What the that substan vehicles w static axle lo are neither able.

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Here is an a carefully come "overl data gather way Depart ing studies. their weigh liquid fuel in the illust

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Axle Weighing Bugaboos—

Continued from Page 70

What the picture tells us it that substantial stresses occur in vehicles which grossly affect static axle loadings. These stresses are neither constant nor predictable.

Temperature and Weight Shift

Here is another example of how a carefully loaded truck can become "overloaded." It is based on data gathered by Colorado's Highway Department in its wheel loading studies. Figures taken from their weight tickets on file for liquid fuel transports are shown in the illustration on page 69.

Since the cargo is liquid it must be symmetrical between the wheels. Officials of the Highway Department advised that the vehicles in the above instances were driven off the scales, direction was reversed and the vehicles reweighed to confirm the difference between right-hand and left-hand loads. This was done to insure that no terrain effect was involved.

Why would the left-hand and right-hand wheels of a liquid fuel semi-trailer weigh differently? As a tank structure is basically the most rigid structure against torsion or warping loads, it is doubtful if this structure would have taken a temporary set from road conditions as discussed before. But what is temperature doing to this type of trailer? Here we have a solid steel structure from 24 to 32 ft long subjected to variable temperatures. In the day time, the top and one side of the trailer was exposed to the radiant heat of the sun while the bottom and opposite side were protected from the sun. While it would appear logical that the liquid load would tend to equalize the temperature of the structure, a full temperature equalization may not occur. An acceptance of this possibility will show the substantial effects of even a small differential temperature in this closed circuit.

Such a warpage force is incalculable and would operate much like a bi-metal thermostat

element where differential expansion is involved. The result is a force in the structure—a transfer of loads among the wheels—a hidden and uncontrollable factor that ruins the best laid plans of the truck operator.

What Causes Redistribution?

What generally can cause load redistribution in a vehicle, assuming the load itself cannot shift on the vehicle? Road conditions can redistribute the load, temperature in certain vehicles can probably redistribute the load, operations of the vehicle such as rapid braking or acceleration can affect the friction forces in the springs and, consequently, weight readings, re-

(TURN TO NEXT PAGE, PLEASE)

50 years of DEKALB quality!

Back in 1904 a DeKalb Wagon was really something but DeKalb had its eye on the future of the horseless carriage. Today — 50 years later — competition still striving to equal DeKalb quality has succeeded only in proving the superiority of DeKalb Bodies!



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In every field — manufacturing, wholesaling, retailing — bakery, dairy, dry cleaning, laundry, etc. — you'll find DeKalb bodies identified with the quality leaders.

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Dekalb Commercial Body Corporation

211 W. GARDEN ST., DEKALB, ILL.

Axle Weighing Bugaboos—

Continued from Page 121

pairs to the vehicle can permanently affect load distribution, a low tire, a weak spring, an out-of-line axle—all can generate grem-lins in the scales. In this regard, it is interesting to learn that the dynamic effects of loads and forces generate some surprising conditions. Built-in "Control

Cells" equipment used with the vehicle in motion reveals critical loading conditions probably not visualized by many engineers.

We need now a comprehensive study of axle load weights to determine the range of variables, the tolerances which should be employed and the physical weighing techniques which should be standardized before axle loads are used as a basis for overload fines. We urgently need this study now so

that States may enforce their laws properly and with confidence and so that truckers may again operate their vehicles legally and with maximum efficiency.

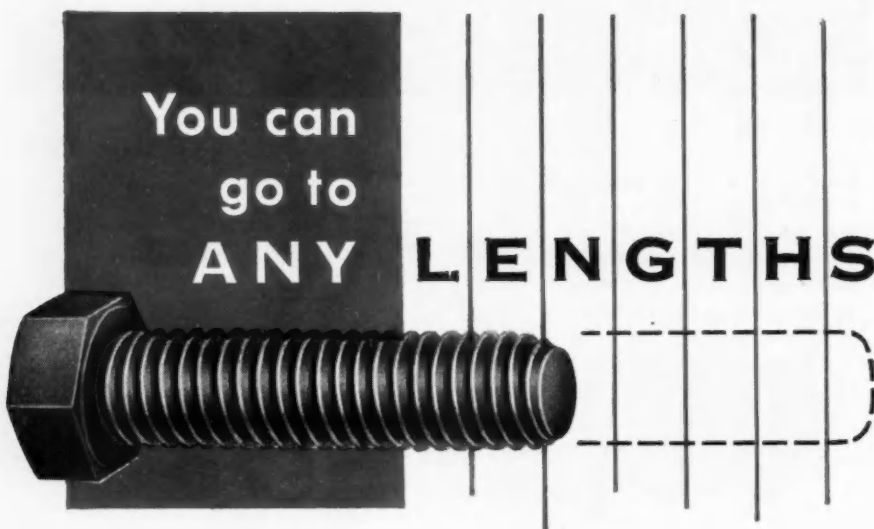
How the Cells Work . . .

The cells themselves are installed in the brackets of the fifth wheel and in the spring brackets of trailers with indicators in the cab which give visual readings of the various loadings at any desired time. The unit works from the truck battery.

Capacity ratings of the individual cells vary from 5000 to 10,000 lb. Little larger than an electric razor, the units are said to provide accuracies of $\frac{1}{4}$ per cent to 1 per cent of the full range of the units and stand overloads up to 1200 per cent of rated capacity.

No vacuum tubes are employed in the circuitry. Hermetically sealed, the unit is said to be virtually weather and tamper proof. Total weight of each control cell is about four pounds.

A typical installation of the built-in truck and trailer axle-load remote-indicating system involves one control cell indicator, com-



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FULL THREAD BODY cap screws!

There's no need to waste time trying to find the right length of cap screw for body applications. Lamson Full Thread Body Cap Screws are threaded to the head and you can cut them off to the length desired.

These rugged Cap Screws are made especially to withstand the stresses and strains of the road as well as high torque pressures during tightening.

Available in diameters from $\frac{1}{4}$ " to $\frac{1}{2}$ " and lengths from $\frac{1}{2}$ " to 2".

Lamson Full Thread Body Cap Screws, are another fine product in Lamson's complete line of automotive fasteners. Order them from your distributor.



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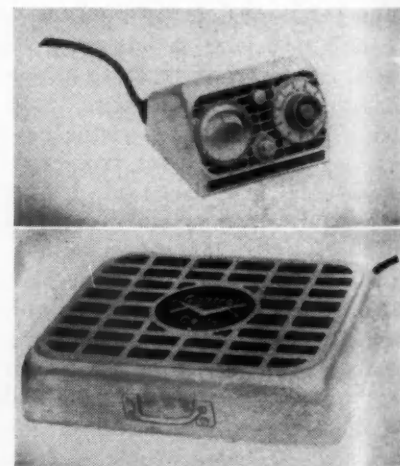
CAP SCREWS

MILLED STUDS

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SEMI-FINISHED NUTS

TAPPING SCREWS



plete with vibrator power supply, two spring brackets with control cells, two wheel brackets with control cells and wiring harness.

Operators are permitted to check load distribution in their vehicles to equalize loads and reduce tire wear.

END

Please Resume Reading Page 71

COMMERCIAL CAR JOURNAL, May, 1954

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PUROLATOR PUR-PAK elements in low-cost fleet package

Now you can get dependable, low-cost filtration with Purolator Pur-Pak elements. Purolator Pur-Pak elements are specially packed and sold to fleet operators at the lowest possible cost.

Pur-Pak elements are constructed of the finest, lint-free cotton fibre,

selected to give maximum service in oil filter applications. The dirt retention abilities of this filter are unsurpassed for its type.

Purolator has the complete line of fleet filters. Pur-Pak for economy; Micronic* where only the best will do! And every Purolator* is backed

by the world's largest filter research and production facilities. When you buy Purolator you're sure of getting the very latest in filter development.

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PurOlator *World's finest* **OIL FILTER**

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Factory Branch Offices: Chicago, Detroit, Los Angeles

COMMERCIAL CAR JOURNAL, May, 1954

123

Automatic Transmissions: If—How—When?

Continued from Page 94

and the tendency toward increased engine speeds. Largely because of the preference for single-reduction rear axle drives and their limitations as to ratio and the limitations of driveshafts and universal joints, Mr. Michell definitely ruled out the overgeared transmission.

Ratio Intervals

Next to range of ratios, the next most important consideration is the intervals between ratios within such range. Naturally the intervals will have to depend upon the number of speeds provided; or perhaps the other way round, the

intervals required will dictate the number of steps. If the ideal infinitely-variable transmission were to become a reality, of course, this problem would disappear as there would be no intervals; no steps. But, unless we make the mistake of considering the torque converter as an infinitely-variable transmission, our present state of knowledge impels us to accept the necessity for some form of stepped progression through the range.

Four considerations should govern:

1. Ease and celerity of shifting. The closer the steps, the more easily and quickly the shifts may be made and the less shock will result.

2. Fuel economy in internal combustion engines is best when they are operated within a range of speeds above the torque peak and below governed speed, loaded slightly below their maximum ability. This avoids lugging or laboring, which, while favorable to fuel economy, results in increased thermal and mechanical stresses which lead to higher repair costs. It also avoids protracted operation on the governor, with resultant waste of fuel.

3. Maintenance of near maximum potential speed under each circumstance of operation means that the highest possible average speed will be sustained over the route, thus reducing running time without exceeding prudent and legal maximum speed. This requires intervals which closely coincide with variations in tractive resistance encountered at all points on the route.

4. Rapid acceleration over the full range similarly sustains higher average running speed.

This certainly makes the idea of the so-called "Hot shift," in which the torque is not interrupted during shifting, most attractive.

In his excellent analysis of the problem, Mr. Michell presents some very potent arguments leading to the conclusion that the presently-accepted ideal of geometric progression of ratio intervals is not entirely sound. We have hitherto proceeded on the assumption

(TURN TO PAGE 126, PLEASE)

MORE PAYLOAD with
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**STEP,
SADDLE,
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CYLINDER
TANKS**



STEP TANK
40, 50, 60, 70 gallon capacities

"CYLSAD" SADDLE TANK
Equipped with gauge ports and diesel connections without additional cost.
70, 85, 105, 125, 145 gallon capacities



CYLINDER TANK
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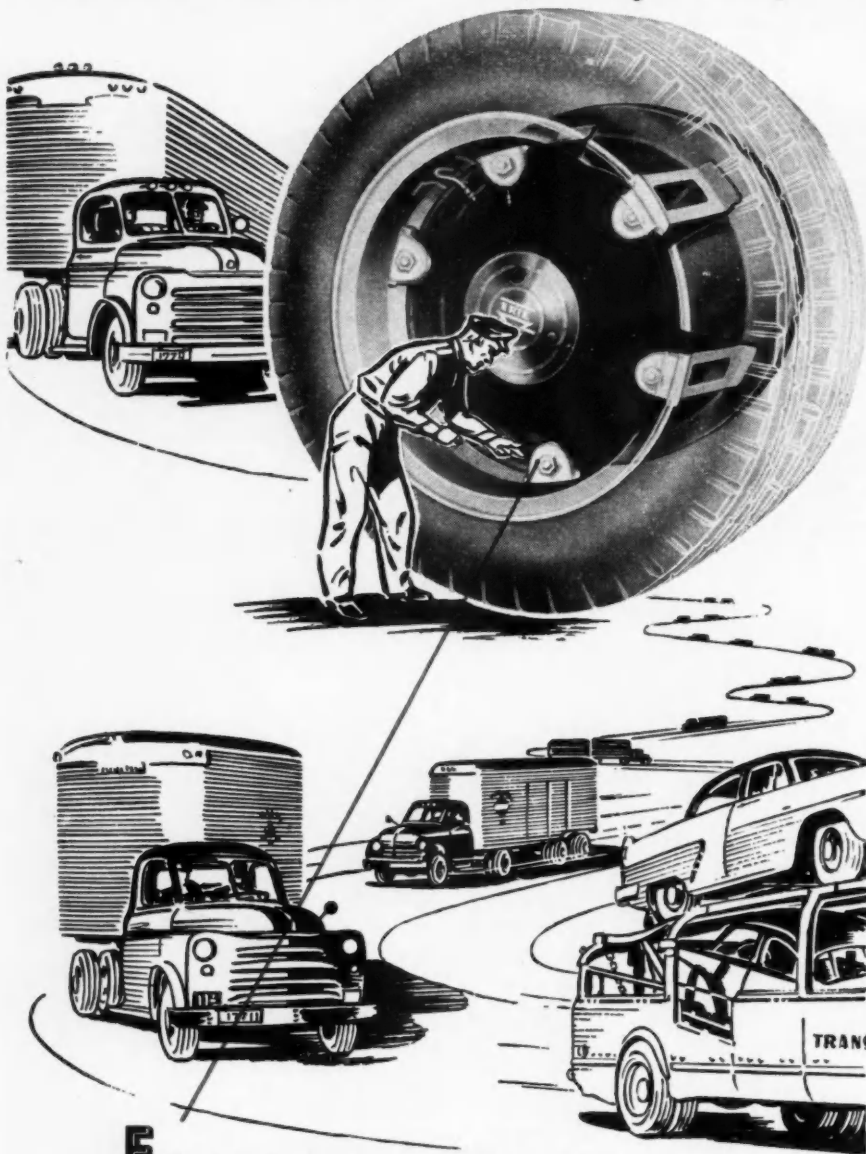
May, 1954

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ERIE Rim Bolts — self adjusting to compensate for rim variations . . . easy to service . . . no extracting, redrilling and retapping . . . Rim bolt nuts of high tensile steel — milled from the bar — double-chamfer for irreversible mounting.

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Erie Wheels

ERIE MALLEABLE IRON COMPANY

Automotive Wheel Division
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Automatic Transmissions:

Continued from Page 124

tion that if each successive ratio is say, 1.25 times the next lower numerically, we would provide a succession giving the most advantageous pattern for both shifting and operating effectiveness. Such a progression provides a uniform range of engine speeds in each shift, a desirable gathering of the ratios at the top and a progressive widening at the bottom.

By a study of the duration of operation in each speed of a representative sample of over-the-road operators, however, Mr. Michell concludes that a more radical pattern would be preferable, the top ratios being more closely spaced and those at the bottom still further apart. Unquestionably, due to the generally improved nature of the main route highways, there is much to support this view as it applies to over-the-road inter-city operations. (See Fig. 1)

Fig. 2 shows those curves in tabular form, with resultant road speeds, assuming 50 mph top speed. In addition, for comparison a similar tabulation covering a modern ten-speed Duplex transmission is added. The big drop in road speed for a small increase in gear reduction at the top contrasted with the small speed loss, with a large increase in reduction at the bottom makes it clear why graduated multiples of reduction are desirable.

For city service, heavy hauling, dumper and mixer work, however, there seem to be good grounds for contending that the steps near the bottom need to be even closer together than at present, with less need for gathering at the top.

Continuous Torque

Uninterrupted acceleration is one of the characteristics of the new passenger car transmissions which arouse the enthusiasm of drivers, largely because of the aesthetic effect. It has appeal in truck transmissions for very different reasons. It is possible to provide continuous, though not uniform rate of increase or decrease (TURN TO PAGE 128, PLEASE)

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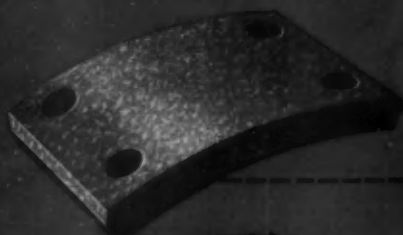
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To match your brake design . . .

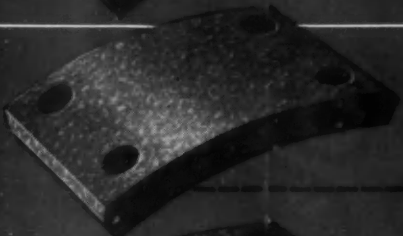
**Select the block with the correct friction value
to meet your operating requirements . . .**

**HIGH
FRICTION**



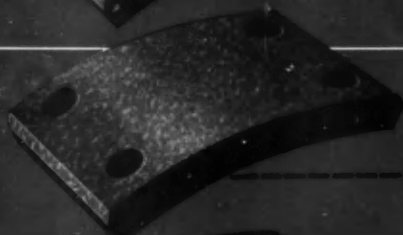
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**MEDIUM
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Johns-Manville Brake Blocks **give you top performance at lowest cost per mile**

To meet the widest possible range of braking conditions, Johns-Manville Brake Blocks are supplied in individual units, or combination sets of high, medium or low frictional characteristics. This flexibility permits custom engineering for every type of brake to meet every type of condition encountered in the operation of bus and truck fleets.

To bus and truck operators, this means lower brake cost per mile, smoother stops, minimum shop and out-of-service time. Most of all, it means *dependability under all driving conditions*. If you would like more information on Johns-Manville Brake Blocks, write Automotive Division, Johns-Manville, Box 60, New York 16, N. Y. In Canada, 199 Bay St., Toronto.



Johns-Manville

asbestos

FRICTION MATERIALS

COMMERCIAL CAR JOURNAL, May, 1954

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Automatic Transmissions:

Continued from Page 126

crease in a step-type transmission, as is illustrated by the Hydramatic. There appear to be two ways in which this so-called "Hot shifting" can be accomplished in a stepped-ratio transmission.

One way is to have overlapping engagement of successive speeds,

so that one speed is gradually picked up as the other is gradually released. This is easily conceivable in a planetary type where friction bands and/or clutches are used. The other is through the use of over-running clutches. The latter would be objectionable if they allowed free-wheeling of the vehicle, the prevention of which might involve considerable complication.

There is no question that a properly-designed automatic shifting device, responsive to both speed and load, would provide the closest approach to perfection in the control of stepped transmission. It would provide as nearly as possible the correct shift at the correct instant under all operating conditions and would relieve the driver of one of his most onerous and exacting tasks. However, strangely enough, drivers themselves seem to be the chief opponents of automatic control. Perhaps this reaction is compounded of mistrust of gadgets and professional pride. Most of us take pride chiefly in our ability to do difficult things, not easy ones.

Short of automatic control, the next most desirable thing is easy, positive and accurate manual control. Power actuation can take the physical effort out of shifting and numerous means are available now to make such operation positive and quick. Accuracy, that is the correct selection and timing of shifts, usually depends upon the judgment of the driver; but can readily be improved by devices which indicate when upshifts or downshifts should be made. It is possible that with control sufficiently simplified and eased, power actuation may not be needed.

Mechanical Characteristics

For commercial practicability, a transmission achieving the above objectives must be sufficiently simple and sturdy to satisfy the following:

1. It must be compact enough to be applicable to short-wheel-based tractor and COE chassis.
2. Its weight should not be much, if any, greater than present multi-speed arrangements.
3. It ought to have sufficient stamina, durability and reliability to provide a useful life and overhaul intervals not less than that of the engine—perhaps 500,000 and 100,000 miles, respectively.
4. Its mechanical efficiency must be high enough so that overall results in performance and economy will compare favorably with present-day types.
5. It should be readily accessible.

(TURN TO PAGE 132, PLEASE)

This is the way to

get things clean...*FAST*...
at minimum labor cost



Contains amazing Kelite NU-RE-SOL*... Safe on Painted Surfaces... Built-in Scale Inhibitor... No water, safe on skin and clothing... Exceptional "wetting-out" qualities.

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Here is the world's best combination for defeating dirt. A Kelite Steam Cleaner (with Kelite Formula 89) will safely clean a white sidewall tire...an earthmover...an oil well...a truck body...a diesel engine...a canning machine. In mere minutes, and without previous experience, you—or anyone—can clean away heavy accumulations of muck or tenacious deposits. Why not see how easy and effective it is to clean the Kelite Way.

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PLANTS IN LOS ANGELES—BERKELEY HEIGHTS, N. J.
CHICAGO—DALLAS—MEXICO CITY



"Click the switch" and start steam cleaning.



No skill needed. If water supply fails, burner and pump shut off automatically.



Rugged! No flimsy diaphragm here. Heavy duty piston pump with stainless steel ball check valves gives service you can bank on.

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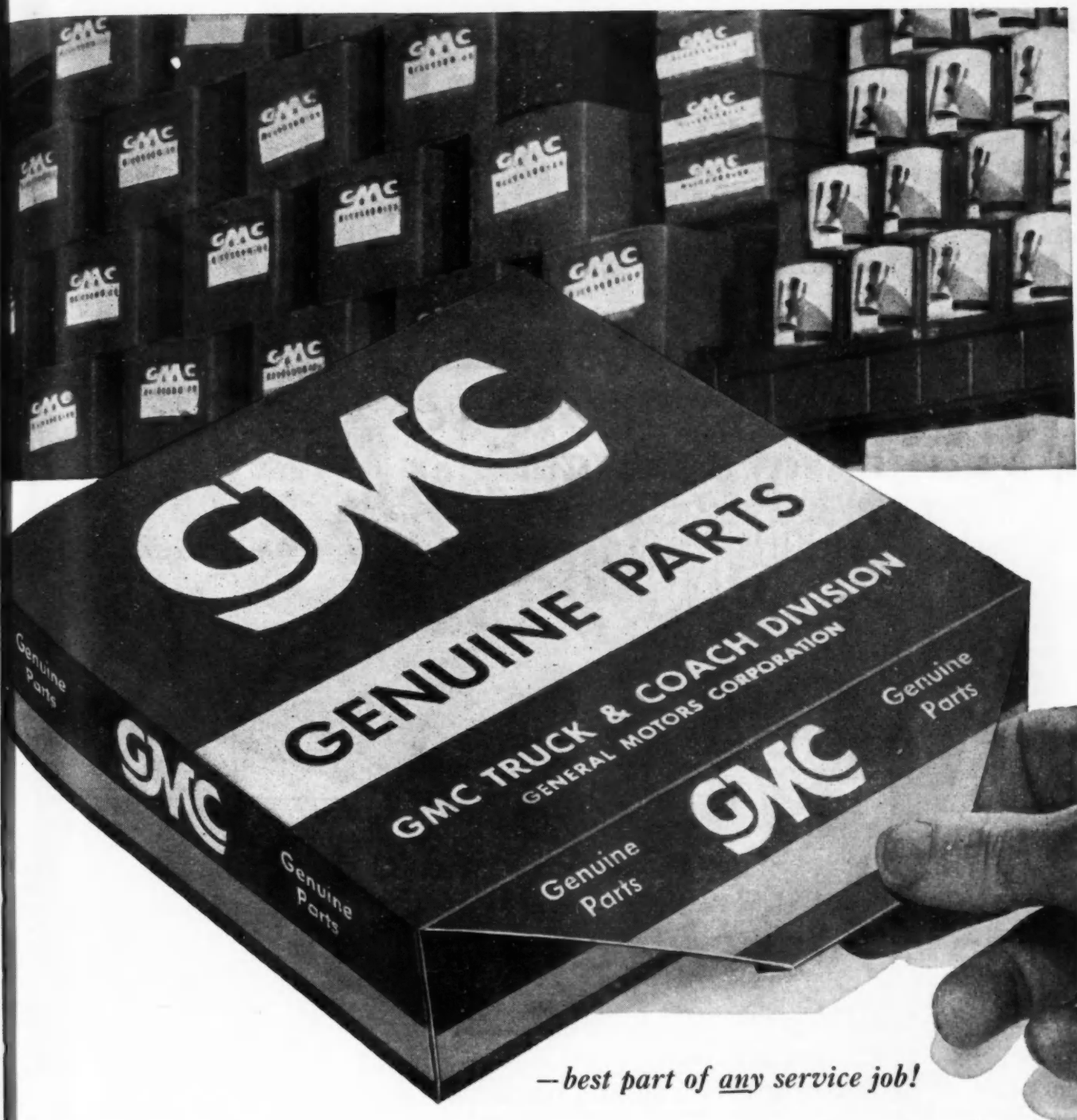
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ay, 1954



—best part of any service job!

GMC truck repair. The odds are far too high — when lives, loads and liability are the stakes.

That's why so many truckers play it safe by making their GMC dealer their exclusive parts source. They know GMC quality leaves nothing to chance. And good truck safety records are no accident!



GMC Truck & Coach Division of General Motors

Be careful—drive safely

Automatic Transmissions:

Continued from Page 128

sible for adjustments and overhaul.

6. It should be simple to maintain, lubricate and adjust.

7. It should be quiet in operation.

8. It should be reasonably low in cost of production in anticipated quantity.

Torque vs. Speed

Right here is one of the most important differences between the action of the torque converter and that of gearing. In gearing, output torque and speed are always reciprocal in their relation to those of input. You get in torque gain exactly what you pay for in speed loss. Not so in the torque converter. For a given gain in torque, the loss in speed is greater than proportionate. For twice the

torque you must sacrifice considerably more than half the speed. This disparity in reciprocal relation varies greatly at different loads and speeds in a given converter and as between different converters under the same circumstances.

Fig. 3 shows the relationships between torque and speed in one

Fig. 3

| Torque Gain % | Speed Loss % | |
|---------------|--------------|-------|
| | Converter | Gears |
| 170 | 100 | 63 |
| 140 | 90 | 58 |
| 130 | 80 | 56 |
| 100 | 70 | 50 |
| 80 | 60 | 45 |
| 60 | 50 | 38 |
| 40 | 40 | 28 |
| 20 | 30 | 17 |

of the newest torque converters, as compared with what gears would produce. To make this comparison a little clearer, Fig. 4 shows this comparison in terms

Fig. 4

| For a Torque Gain in % of | Mph Drops to | |
|---------------------------|--------------|-------|
| | Converter | Gears |
| 170 | 0 | 19 |
| 140 | 5 | 21 |
| 130 | 10 | 22 |
| 100 | 15 | 25 |
| 80 | 20 | 27 |
| 60 | 25 | 31 |
| 40 | 30 | 35 |
| 20 | 35 | 42 |

of torque vs. miles per hour, assuming 50 mph in direct drive.

Efficiency

Similarly, comparing the mechanical efficiency of the torque converter with that of gears, the former suffers by comparison. Contrary to the traditional assumption that each gear mesh entails a loss of 2 per cent and that in addition, efficiency in gears decreases proportionately to gear ratio, modern truck transmissions show very little difference in efficiency as between the different ratios, with that in high—particu-

(TURN TO PAGE 134, PLEASE)

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• Functional, rugged and durable truck body hardware, properly selected and installed will help keep your fleet bodies "on the job" and out of the repair shop.

The uniformity of EberHARDWARE permits interchangeability and you'll find the answer to all your truck body hardware needs in the **E** most complete line available.

Shown here are but a few of the most popular items which include hinges, latches, manual door controls, seat pedestals, etc. Write for the Catalog TODAY.

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TRUCK BODY FITTINGS **E**
EBERHARD MANUFACTURING CO.

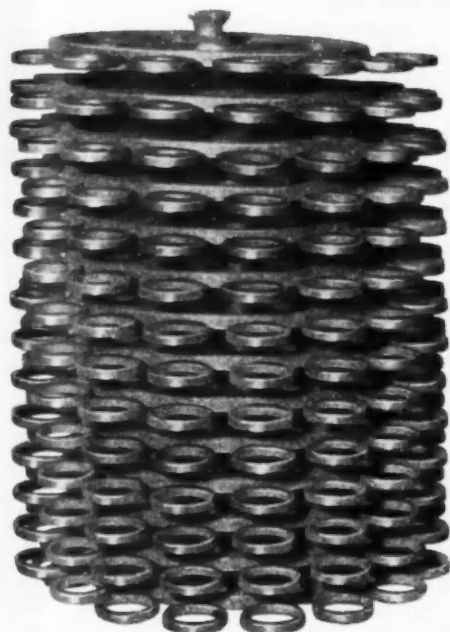
Division of the Eastern Malleable Iron Co.

EVARTS AVENUE

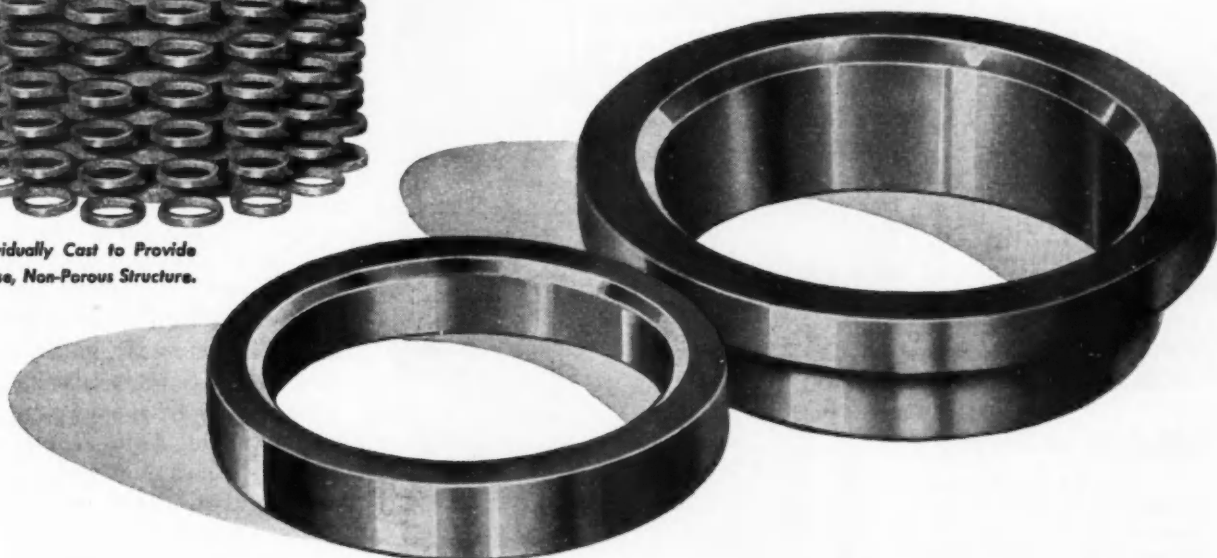
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Solid Eatonite Valve Seat Inserts

**Heat Resistant
Corrosion Resistant
Wear Resistant**



*Individually Cast to Provide
Dense, Non-Porous Structure.*



For engines in heavy-duty service, where high operating temperatures are encountered over extended periods of time, valve seat inserts cast in solid Eatonite pay for themselves many times over. The combination of Eatonite Valve Seat Inserts and Eatonite-Faced Valves virtually eliminates valve failure caused by prolonged operation at excessive temperatures, and maintains a high level of engine output. Available for all types of engines.

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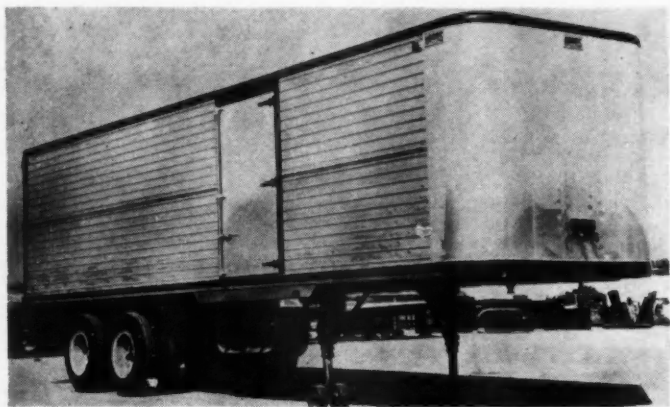
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PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings • Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

COMMERCIAL CAR JOURNAL, May, 1954



Steel-Aluminum Trailers

Combination steel - and - aluminum vans are now in production at Hobbs Mfg. Co., Fort Worth, Texas. Steel subframes and uprights furnishing strong, economical support for lightweight corrugated aluminum sheathing will be outstanding features of two new tandem carriers—a closed cargo van and an open top grain trailer.



BENNETT FLEETMETER GASOLINE PUMPS are specially designed for *FLEETS*

Engineered for Efficiency

Companion to the rugged, standard Bennett retail service station pumps, and specially designed for fleet operation, Fleetmeter pumps speed truck re-fueling and step-up fleet service operations for maximum efficiency and economy. Fast, accurate delivery, easy hose handling and dependable performance are combined for longest pump life and least service attention. Standard models indicate delivery on a register.

Automatically Printed Receipts

Ticket Printer models provide an automatically printed record of each delivery for inventory control and protection against errors and losses.



Write for details

JOHN WOOD COMPANY

Bennett Pump Division

Muskegon, Michigan • Toronto, Ontario

Offices in Principal Cities



Automatic Transmissions:

Continued from Page 132

larly if overgeared—among the lowest.

Contrasted with this, the efficiency of the torque converter does decline with the torque gain and at an exponential rate. That is to say, a given torque gain is accompanied by a constantly increasing rate of efficiency loss. Conversely, the efficiency increases as the torque multiplication decreases; but as the torque ratio approaches unity, it again drops off so rapidly as to make the torque converter impracticable. The torque converter is incapable of speed increase, even though the torque ratio falls below unity, whereas gears continue to deliver reciprocal results. The torque converter cannot overgear.

Hydraulic Advantages

Among the allurements of both forms of hydraulic drives are these:

1. Operation is simplified. The vehicle may be idled in gear and set in motion by merely pressing on the accelerator.
2. Engine stalling eliminated.
3. Friction clutches, if used at all, are subjected to greatly reduced duty.
4. Drive-line shock and vibration are greatly reduced.

Not a Transmission

So effective is the torque converter in these respects that in the (TURN TO PAGE 138, PLEASE)

Tru
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Never be
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1153 AP
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Truck Muffler You Want—

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Never before have you been able to get such a muffler! The new AP Heavy Duty Truck Muffler has everything you want.

Of course, you want low back pressure. AP gives it to you because of the "S-Flow" design and non-clogging extruded holes. Of course, you want long life. AP gives it to you because of rugged, heavy steel construction (weight up to 42 lbs.). Of course, you want safety. AP gives it to you because all-welded construction and precision fitted nipples minimize carbon monoxide dangers.

And of course, you want silence—to silence the complaints of law officers and civic groups. AP gives it to you because special resonating chambers dissipate noise.

You can't beat this new AP Heavy Duty Truck Muffler. So get full information including free catalog from your AP wholesaler or write us today.

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Heavy Duty Truck Mufflers

Fleet Training Courses

FLEET training courses have shown themselves an excellent source of trained personnel and a good way to keep up-to-date on latest techniques in fleet safety, maintenance and operation. For your convenience, here is a calendar of courses scheduled for 1954 together with the address to write to for further information. Unless otherwise noted, courses are full time day courses.

MAY

- 8 —Fleet Supervisor Top Management Conference
—Center for Continuation Study, University of Minnesota, Minneapolis 14, Minn.
- 12-14—Terminal Operation Loss Prevention Course—
Dept. of Motor Transportation, University of Georgia, Atlanta, Ga.
- 18-20—Motor Fleet Management Institute—Industrial Education Dept., Extension Division, University of Texas, Austin 12, Texas.
- 24-28—Course for Trainers of Commercial Drivers—
Institute of Public Safety, Pennsylvania State University, State College, Pa.
- 24-June 19—Truck Driver Training School, College Extension Division, North Carolina State College, Raleigh, N. C.
- 27-June 10—Fleet Supervisors Safety Training Course
Greater New York Safety Council, Lincoln Bldg., 60 East 42nd St., New York 17, N. Y.
(Course will be held Thursday evenings May 27, June 3 and 10, at the Hotel Statler.)

JUNE

- 7-11—Fleet Supervisor Course—Program Coordinator, University of Denver, Denver, Col.
- 14-18—Course for Trainers of Commercial Drivers—
Engineering Extension Services, Iowa State College, Ames, Iowa.
- 21-25—Fleet Supervisors Course — Traffic Institute, Northwestern University, Evanston, Ill.
- 21-25—Fleet Supervisors Training Institute—Bureau of Conferences and Short Courses, Extension Division, University of Virginia, Charlottesville, Va.
- 24-25—Fleet Supervisor Refresher Seminar — Traffic Institute, Northwestern University, Evanston, Ill.
- 28-July 2—Fleet Supervisors Course — University of Delaware, Newark, Del.
- 28-July 24—Truck Driver Training School — College Extension Division, North Carolina State College, Raleigh, N. C.

JULY

- 26-Aug. 21—Truck Driver Training School — College Extension Division, North Carolina State College, Raleigh, N. C.

AUGUST

- 30-Sept. 25—Truck Driver Training School — College Extension Division, North Carolina State College, Raleigh, N. C.

Blackhawk announces NEW G.V.W. JACK DESIGN

for today's
bigger jobs

Stronger plungers resist side strains. Longer screw extensions fit all axle heights. Parts 68% interchangeable in models 3 to 20 tons.

New tough malleable iron top cap supports off-center loading and gives solid rigidity to entire jack.

Improved long-lived steel pump has mico-finished steel housing — not a casting. Readily replaceable.

Improved over-size malleable iron pump beam takes abuse, reduces wear.



The most dependable jack line ever built now offers EVEN MORE stamina to handle today's increased G.V.W.'s, greater lifting spans and broader range of hydraulic jack applications.

Whatever the rig and its G.V.W. (gross vehicle weight), there's a newly designed Blackhawk Hydraulic Jack with the right capacity and lift. You'll handle the job more quickly and surely — no need to block up or unload.

Only by Standardizing on Blackhawk can you get the benefits of this new "G.V.W. Jack design." Cut your overall Jack costs and insure more dependable performance. Order from your Blackhawk Jobber. A product of Blackhawk Mfg. Co., Dept. J-1154, Milwaukee 1, Wis.

Only Blackhawk Jacks are tagged with the "Service Proved" Seal



BLACKHAWK

Automatic Transmissions:

Continued from Page 134

case of mass transportation buses, it has had widespread and successful application in which only one forward transmission gear is provided, the converter taking the whole duty of providing the torque increase necessary for starting and for grades. This has misled some to expect that similar results might be secured in passenger cars and trucks. That such application is impracticable is due to the fact that the efficiency of the torque converter is much too low for continuous operation in its range of torque multiplication and to the further fact that its range of torque multiplication is inadequate to replace the transmission entirely.

This is why inter-city buses retain conventional drives. Passenger cars, even though they have extremely high power-to-weight ratios and operate most of the time in direct drive, supplement their torque converters with transmissions having two or more forward speeds. Off highway trucks using torque converters also find such additional ratios essential.

Success of the simple arrangement in buses is accounted for by the stop-and-go nature of their operation, in which stops of from seven to twenty or more per mile require almost continual acceleration and deceleration. In this type of operation, the torque converter is at its best. The frequency with which gearshifts would be necessary with the conventional clutch-and-gearbox drive have been found to offset the higher theoretical efficiency of the latter, to involve so much maintenance and to so increase the work of driving that it has made the conventional type intolerable in mass transit buses.

The fact is that the torque converter, no more than the fluid coupling is not to be considered a form of transmission: but rather as a form of clutch.

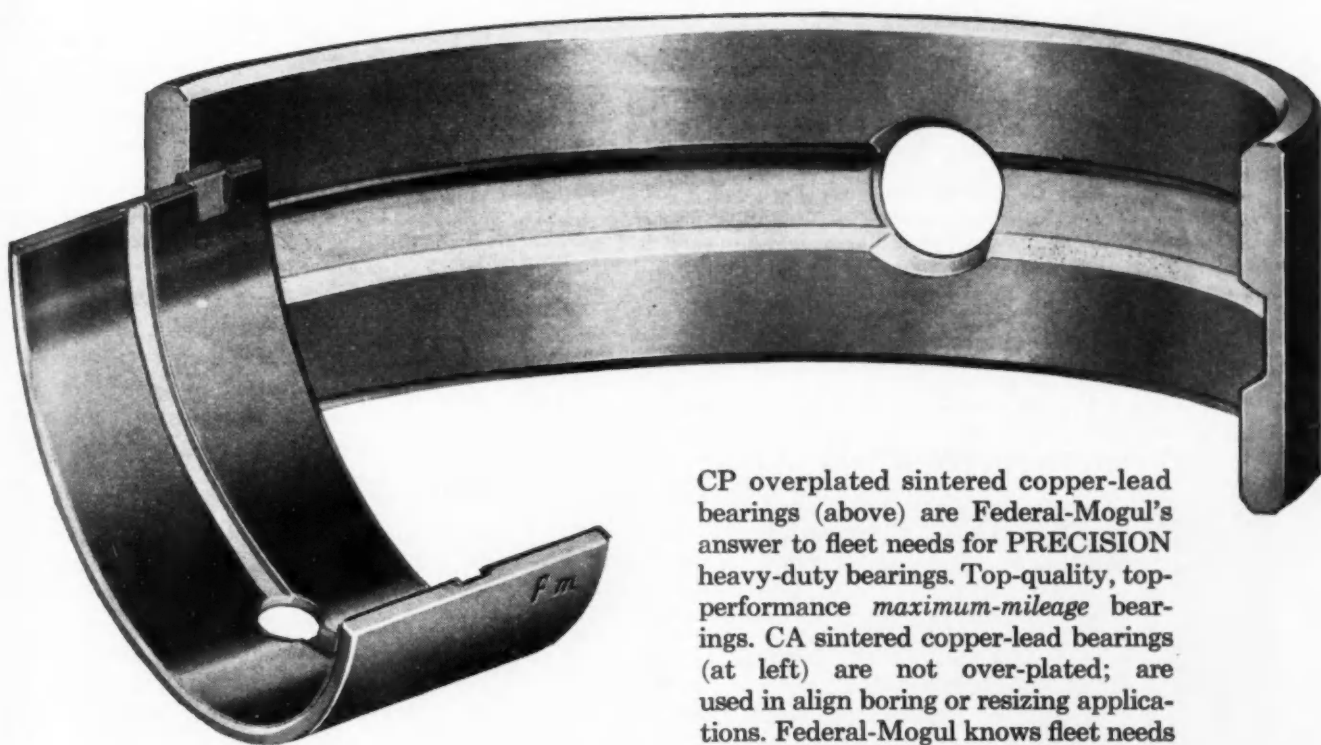
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Please Resume Reading Page 96



SINTERED

copper-lead Bearings mean
HEAVY-DUTY SERVICE
for Fleets!



CP overplated sintered copper-lead bearings (above) are Federal-Mogul's answer to fleet needs for **PRECISION** heavy-duty bearings. Top-quality, top-performance *maximum-mileage* bearings. CA sintered copper-lead bearings (at left) are not over-plated; are used in align boring or resizing applications. Federal-Mogul knows fleet needs . . . and knows how to service them!

Ask your Federal-Mogul Jobber!

FEDERAL-MOGUL SERVICE

Division Federal-Mogul Corporation
DETROIT 13, MICHIGAN



PREFERRED BY FLEETS!

Appearance Maintenance... at Gray Line

Continued from Page 81

accident not only means expense and delays, but it reflects in bad public relations—and in this case, business.

4. Equipment must be ready to roll at all times. You can't always estimate requirements in transportation, but you can always as-

sume that it starts on schedule, finishes on time and is ready for any emergency demands.

Appearance maintenance at Gray Line starts at the shop, where the floors, equipment, tools, work areas and mechanics all have that "scrubbed look." "The public, in

demanding well-kept rolling stock, has made us realize the importance of cleanliness in all phases of our business," says P. J. McNamee, manager of operations. "But what might be a matter of selling service has become a practical business policy here too, for clean working conditions pay off in better work, higher employee morale, and increased work output."

The Gray Line shop covers approximately 40,000 sq. ft. Floors are scrubbed down and painted periodically on the assumption that clean equipment needs clean maintenance facilities. There is a morale factor too, Mr. McNamee reports. "Every mechanic respects our high standards of appearance and as a result they take more interest in their work. When you climb into and around buses with dirty clothes or shoes, there is always extra work involved in the final cleaning up. When areas are kept spotless, you just don't have a chance to smear up the equipment."

Shop Lighting

There is another important factor in this progressive maintenance program. That is shop lighting. Fluorescent lights, scientifically located for proper illumination, add a cheerful note to the surroundings. Good lighting shows off equipment and helps to develop an interest in keeping it looking neat.

Working areas and pits, of course, are equipped with floodlights and overhead reflectors to highlight the work. In very few places, however, are auxiliary lights required due to the proper engineering of the illumination. There are two sections equipped with pits. Three pits placed just opposite the parts department take care of routine inspection and lubrication of all equipment. In another area two pits are provided for other types of service. Recessed lighting and ventilating facilities are features of these installations.

Washing, Painting

Buses are washed daily—sometimes twice a day. There is an at-

(TURN TO PAGE 144, PLEASE)

BETTER GOVERNOR PERFORMANCE AT HIGHER ENGINE SPEEDS FINER CALIBRATION

As the trend toward progressively higher engine speeds became apparent, King-Seeley engineers anticipated the need for finer governor calibration.

The spring loaded calibrating scale was discarded. It was replaced by the "Flow Bench", a development which faithfully duplicates actual governor operating conditions. Manifold vacuum and carburetor venturi vacuum can thus be accurately measured for any governor setting and the setting made precisely.

Today every K.S. Vari-Speed Governor is calibrated at two points—no load and full load.

Allowable variation in governed speed at full load has been reduced 45% and at no load, 60%.

Finer calibration together with certain mechanical improvements have increased the dependability of the K-S Governor and its ability to govern without loss of pick-up or engine efficiency.



6653



**KING-SEELEY
CORPORATION**

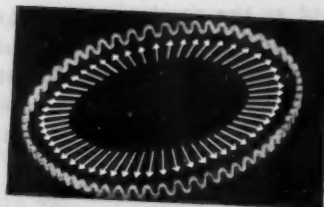
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WORLD'S LARGEST MANUFACTURER
OF AUTOMOTIVE GOVERNORS

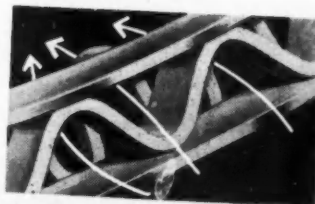


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THESE PEDRICK *FORMFLEX* OIL RING ADVANTAGES MAKE THE BIG DIFFERENCE



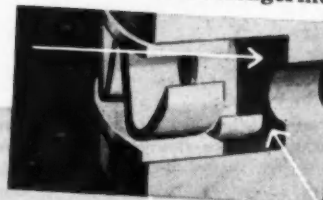
UNIFORM PRESSURE DISTRIBUTION—"Equalizer" gives equal outward pressure for more perfect seal—better oil control—longer life.



ALMOST TRIPLE OIL DRAINAGE— $2\frac{1}{2}$ times more open area provided by "Equalizer" and Spacer. Also, no plugging.



CHROME FOR LONG LIFE—Faces of steel rails chrome plated for 2 to 4 times longer life.



INDEPENDENT OF GROOVE DEPTH—"Equalizer" does not rely on contact with bottom of groove for pressure or tension.

... AND FOR HEAVY DUTY ENGINES

The PEDRICK CHROME TOP RING



ELIMINATES BREAKAGE. A special alloy centrifugally cast and heat-treated, is exceptionally tough and stands up without breakage even under the heaviest loads.

HEAT SHAPED. Process developed and used exclusively by Pedrick to insure correct and lasting tension, and to maintain uniform pressure around entire circumference of ring.

POSITIVE 3-WAY SEAL. Twist-Seal design gives point contacts at cylinder wall and upper and lower sides of ring groove—for quick and lasting seals at all three locations.

2 TO 4 TIMES LONGER LIFE. The solid hard chrome face lasts up to 4 times longer and also reduces wear on cylinder wall and on all the other rings.

WILKENING MANUFACTURING CO.

PHILADELPHIA 42, PA.

In Canada: Wilkening Manufacturing Co.
(Canada) Ltd., Toronto

Appearance Maintenance

Continued from Page 140

tendant at the wash rack day and night, preparing the equipment for the next day's run. Automatic washing equipment is used, though a man with hand brushes finishes out the job.

Equipment is painted the familiar Gray Line colors whenever the slightest evidence of fade or

damage is noted. While this work varies with the type of vehicle and its service, there is sufficient amount of work to keep three painters busy. However, much of this painting is work on the drive-it-yourself cars also maintained here. A completely equipped body shop completes the facilities at this garage.

Driver Morale—Safety Key

Considerable emphasis is placed on safety at Gray Line. Last year's

accident ratio showed a figure of .391 per 100,000 miles. Of the 200 drivers employed, 9 have never had an accident of any kind. Drivers have an average of seven years of service with the company.

While incentive programs, selection and training fall along more or less conventional lines, key to Gray Line's safety program is high driver morale. Men are selected on the basis of their personalities and ability to meet the sightseeing "guests." In most cases they are interested and somewhat familiar with the operation. Training periods vary with the capabilities of the individual. Sometimes a trainee may ride with an old time driver for a month.

Driver Trouble Shooting

There is another important training approach, and that is in basic mechanics. Since Gray Line's major service is safe and dependable transportation, drivers themselves have a responsibility for keeping equipment running. A road breakdown or a delay enroute is bad business.

Drivers are instructed in mechanical details to the extent that they can spot a poorly operating bus or even a potential failure with surprising accuracy. The drivers reports at the end of each trip are given considerable attention. They are required to report any malfunctioning or abnormal condition encountered during the trip. The company is not satisfied with a typical "Lacks power," but insists upon a complete description of the trouble.

Shop mechanics are on hand when the driver returns so they can get first hand any details they need to guide them in bringing the bus back to standard.

When a driver signs his name to a report, he has assumed responsibility that the coach is either safe and mechanically sound for the next driver, or that specific items require service.

That this program has worked out satisfactorily is evidenced by the fact that Gray Line experiences but one road failure per 48,000 miles.

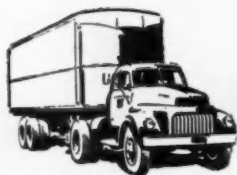
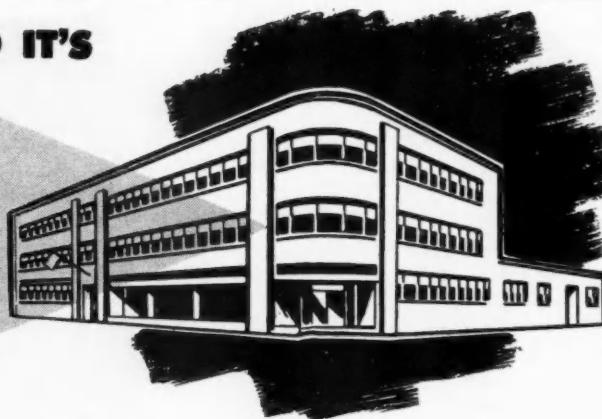
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Please Resume Reading Page 82

COMMERCIAL CAR JOURNAL, May, 1954

IN CHICAGO IT'S

**ILLINOIS
AUTO
ELECTRIC
CO.**



AUTHORIZED FACTORY WAREHOUSE SERVICE

*for Special Truck
and Trailer Equipment*

- Elston Sanders
- Bendix-Westinghouse and Bendix B-K Vacuum Brakes
- A. S. F. Fifth Wheels
- Elston L. P. G. Cargo Heaters
- Hunter Cab and Cargo Heaters
- Kim Hotstart Engine Pre-heaters
- Mondak Voltage Selector Switch
- Cargo-Guard L. P. Gas Heaters
- American Bosch & Bendix-Scintilla Diesel Injection Service
- Kysor Automatic Radiator Shutters
- Sun Tachometers & Sangamo Tachographs
- Ensign Carburetion Equipment for L.P.G. Systems
- Prior and Michigan Fleet Safety Tanks
- Detroit Automotive Load-Booster 3rd Axle Assemblies and Thornton 4-Wheel Drive Axles



POLICE & PUBLIC SERVICE SPECIAL EQUIPMENT

Leece Neville Alternators
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American Bosch Generators
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I.C.C. REQUIRED SAFETY & LIGHTING ACCESSORIES

Complete stock on hand of nationally-advertised

Fuses — Flares — Flags — Turn Signals — Marker Lights — Fire Extinguishers

COMPLETE TRUCK REFRIGERATION EQUIPMENT

- Hunter Dry Ice Coolers
- Kold-Hold Truck Plates
- Allen Coolers
- Arctic Traveler
- Kold-Trux Truck Refrigeration Units
- LeHigh "Blu-Cold" Truck Refrigeration Units



Call us regarding your special equipment needs.

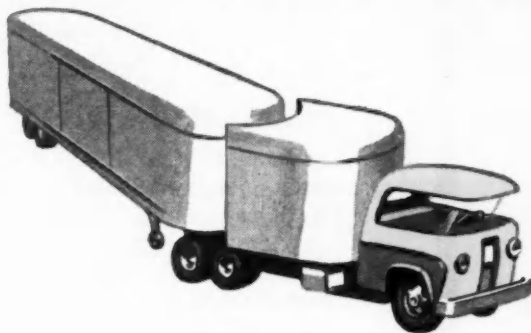
ILLINOIS AUTO ELECTRIC CO.

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Today...

a new type of bearing



lengthens bearing life,

reduces maintenance cost



MORaine-400

The tough problem of engine bearings has been solved with Moraine-400—toughest automotive engine bearing ever made! Think of what this means to truck owners in terms of *less* time and expense for bearing maintenance... *more* time on the road.

Moraine-400 is made from aluminum-base alloy—developed by General Motors-Moraine research over a ten-year period—that is bonded to a steel back. When Moraine-400 is used bearing *length* can be reduced, crankshafts can be strengthened to handle greater piston loads, and engine builders can pack more horsepower into engines without increasing engine size!

Many new automotive and off-the-road engines—both gasoline and Diesel—that deliver greater power per bearing length are being equipped with Moraine-400 bearings.

Note: Moraine also makes the famous Moraine-100 bearings—original equipment on many of the nation's finest cars and trucks.



**moraine
products**

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

Arrow's new heavy-duty directional signal switch for trucks and buses

Use it with any directional signals



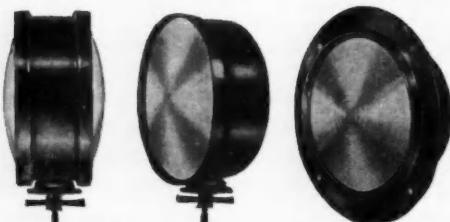
Low in cost—
long on service
Burn-out-proof
Unconditionally
guaranteed

Model 280
Heavy-Duty Truck
and Bus Directional
Signal Switch

- Fits all trucks and buses; easily installed; extra-heavy-duty brackets
- Positive proof—green pilot light indicates burned-out bulbs or inoperative signals
- Truly burn-out-proof; protected by fuse in line
- Modern styling, with baked metallic enamel finish, attractive plated handle—8 $\frac{5}{8}$ " overall length
- Available with or without flasher, for 6- or 12-volt systems, and in famous Magnalite Signal Kits

See the complete line of Arrow Safety After Dark equipment. Get a free Arrow catalog from your jobber today.

Arrow Magnalite Class A Signals with Magnalume lens are available in sets of double-faced, single-faced, or flush-mounted lights.



N-128

N-127

N-129

ARROW

SAFETY AFTER DARK



Arrow Safety Device Company • Mount Holly, New Jersey

New Products

Continued from Page 87

controlled heavy duty tire changer is the hydraulic hoist for lifting wheels and mounted tires on and off the machine. To remove a tire, four shoes are forced inward between the rim and bead of the tire with a force in excess of 33 tons, and as the shaft continues downward, the tire is removed.

P16. Tack Cloth

Associated Producers, Inc., Detroit, have announced production of a new tack cloth. The No. 706 "Super Tack Cloth" is an open mesh textile, woven, not knitted. This cloth is "hot-treated" with a solution specially developed by Associated Producers. The solution is said to remain in a stable tacky or sticky condition but not "gooey." Six cloths, folded to handy pad size, each 18 by 36 in., are sealed in a clear plastic reusable box. The cloths are said to remain stable without deteriorating in storage.

P17. Tire, Brake Tools

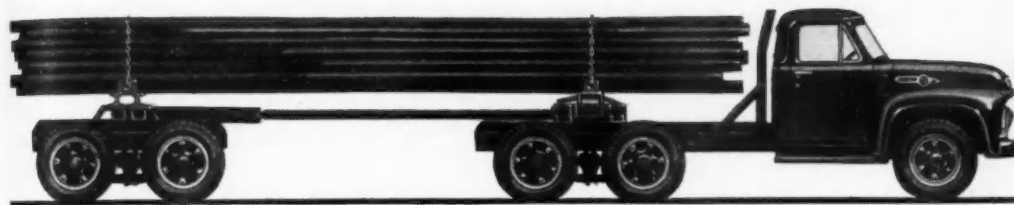
Barrett Equipment Co., St. Louis, Mo., has just announced a "tire doctor" designed to true-up out-of-round tires and remove tire cups. Outstanding feature claimed for this new equipment is that it removes cups without sacrificing center tread by providing for a shifting of radius from one side of the tire to the other. Barrett has also announced an easy-to-read micrometer-type brake drum gage. It indicates drum diameter in inches, thousandths oversize, oversize lining needed in decimal and fraction measurements, thickness of shim stock needed, how much drum is tapered or egg-shaped.

P18. Drive Line Shafting

Muncie Parts Mfg. Co., Muncie, Ind., has announced availability of shafting for power take-off drive lines. It is available in square, round and hexagon shapes. The round shafting comes with keyways already tooled in. Available diameters range from $\frac{3}{4}$ to 1 $\frac{3}{16}$ in. Lengths range from 18 to 72 in. Round shafts have an extra long keyway on one end to (TURN TO PAGE 148, PLEASE)

ANOTHER WAY YOU SAVE WITH FORD TRIPLE ECONOMY

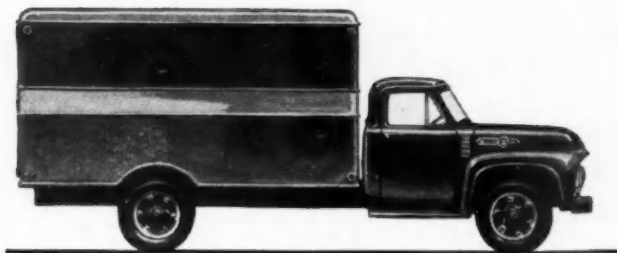
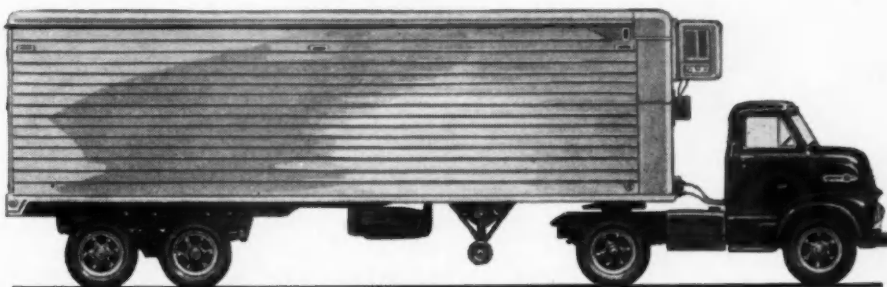
2 New Tandem Axle Big Jobs . . . up to 3800 lbs. more payload than other make 6-wheelers



Brand new Ford factory-built T-700 and T-800 six-wheelers rated for 27,000 lbs. and 40,000 lbs. GVW, up to 60,000 lbs. GCW. Powered by Low-FRICTION V-8's—138-h.p. *Power King* and 152-h.p. *Cargo King* (T-700), 170-h.p. *Cargo King* (T-800).

4 New Cab Forwards . . . up to 2500 lbs. more payload

Ford's giant new Cab Forwards, C-700, C-750, C-800, C-900, haul 35-ft. trailers within the legal limits in all states. Rated up to 27,000 lbs. GVW, 55,000 lbs. GCW. C-900 handles up to 2500 lbs. more payload than other make cab forwards with 55,000 lbs. GCW.



4 New Conventional Models . . . up to 27,000 lbs. GVW—55,000 lbs. GCW

New Ford Series F-700, F-750, F-800, F-900 offer body and payload capacities up to 20,117 lbs. Three new Low-FRICTION V-8's give you gas-saving power, from 138- to 170-h.p. concentrated in 256 to 317 cu. in.

'54 Fords go big on BIG JOBS!

Ten series in Ford's expanded line of new extra heavy duty trucks.

New V-8 power up to 170-h.p.! New Master-Guide Power Steering! New money-saving capacities give you another way to save with Ford Triple Economy.

Now there's a Ford Truck to handle your toughest, heaviest hauling and do it with economy that's new to the extra-heavy-duty field.

New Low-FRICTION, Overhead-Valve V-8's deliver as much as 44% more power per cubic inch than other truck engines in their class. The fewer cubic inches an engine has, the less gas it usually needs. New Short-Stroke design cuts friction, increases engine life.

New *Master-Guide* Power Steering is standard on T-Series with *Cargo King* engines, optional at worthwhile extra cost on F-Series with *Cargo King* engines. It cuts steering effort up to 75%! Ford's new 3-man *Driverized* Cabs and controls provide comfort and driving ease to help the driver do a better job, faster and with less effort.

For new slants on heavy duty truck economy, call your Ford Dealer today, or write: Ford Division, Ford Motor Co., Dept. T-1, Box 658, Dearborn, Mich.

SAVE WITH ALL THREE!

1. New Gas-Saving Power
2. New Driver-Saving Ease
3. New Money-Saving Capacities

FORD *TRIPLE ECONOMY* TRUCKS

MORE TRUCK FOR YOUR MONEY!

New Products

Continued from Page 146

enable the user to cut the shaft to the exact length required and eliminate having to cut in the keyway.

P19. Wheel Lifter

A new wheel lifter for light truck use has been announced by Wheel Lifters, Inc., Boise, Idaho.

Resembling a giant-size "fork," it fits through the two bottom stud holes in the wheel. It is pushed through to the studs on the hub and lifted slightly to put the wheel on.

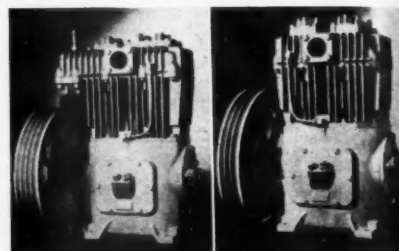
P20. Insulated Terminal

A new insulated terminal for users of heavy duty wire has been developed by Aircraft-Marine Products, Inc., Harrisburg, Pa. Insulation is designed to extend minimum distance beyond termi-

nal barrel, provides maximum permanent support and allows the use of large size wire in restricted areas. Completely separate metallic ring grips wire insulation, prevents exposure of conductor during sharp bends and cable fatigue caused by excessive flexing and vibration. A tough vinyl insulation is used that will withstand a minimum of 6000 volts, which is four times the military specification for insulated terminals.

P21. Air Compressors

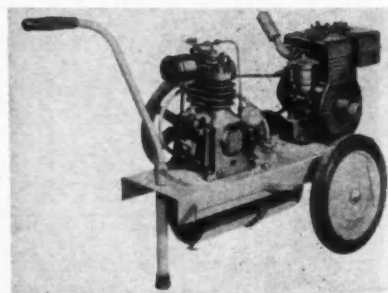
New compressor Model Nos. 255 and 350 designed for automotive applications are announced by Quincy Compressor Co., Quincy, Ill. Model 255, right, is a single



stage duplex cylinder with a 4½-in. bore and 3½-in. stroke. Maximum piston displacement is 58 cu ft and maximum continuous pressure is 100 psi. The Model 350, left, is a two stage compressor with a 6 and 3¼-in. bores and 3½-in. stroke. Maximum piston displacement is 51 cu ft. Maximum continuous pressure is 200 psi with 350 psi intermittent.

P22. Air Compressors

A new line of portable air compressors in a variety of models is being introduced by the DeVilbiss Co., Toledo, Ohio. Designed ex-



pressly for spray painting is a 1 hp model, rated at 60 lb maximum pressure and delivering 5.4 cfm of air. For general utility work, a ½ and 1-hp compressor, both having a 100 lb maximum pressure rating are available.

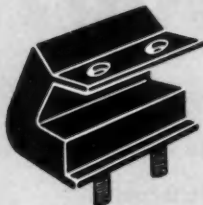
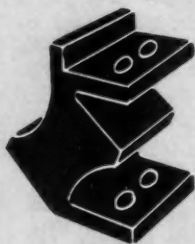
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Please Resume Reading Page 88

COMMERCIAL CAR JOURNAL, May, 1954

How satisfied

Be sure to



is your Customer?

replace motor mounts
for smoother
motor performance

Don't drive your customer away by permitting him to drive his car at less than "top efficiency." The car owner may sense something is wrong but he can't spot the trouble. Excessive engine vibration, difficult steering and clutch chatter may develop due to faulty motor mounts. It's the mechanic's job to properly check the car and recommend replacement when necessary—with Armor-Flex mountings. Remember—every customer should be a SATISFIED customer. Keep 'em happy with a smooth running automobile.

Doan MANUFACTURING CORP.
1761 LONDON ROAD • CLEVELAND 12, OHIO

On

AIR
OFF
ALL
THE
EXC
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More Efficient
let valves—
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Cleaner Air
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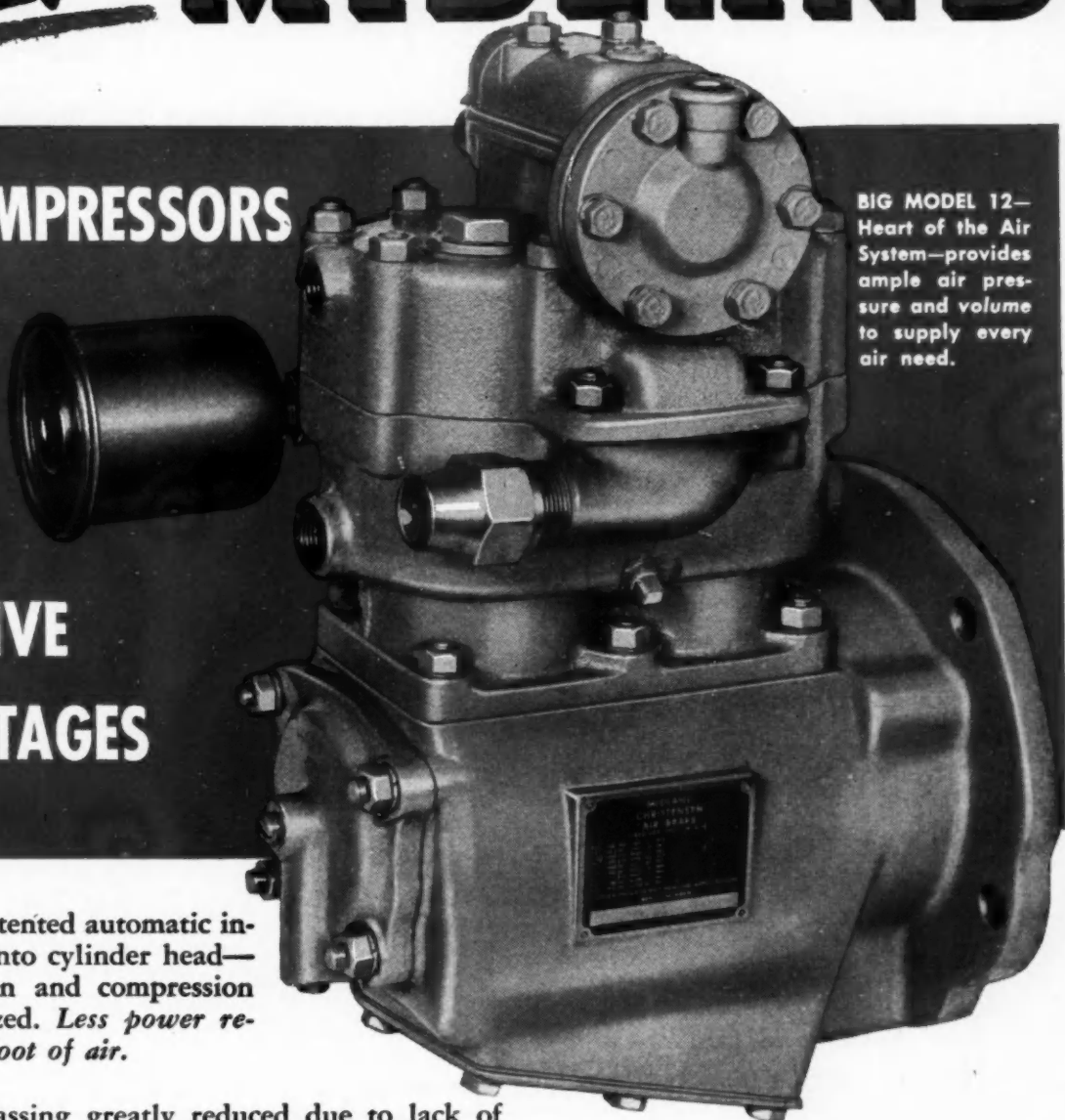
Simpler In
inder head,

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COMMERCIAL

ONLY MIDLAND

**AIR COMPRESSORS
OFFER
ALL
THESE
EXCLUSIVE
ADVANTAGES**



BIG MODEL 12—
Heart of the Air
System—provides
ample air pres-
sure and volume
to supply every
air need.

More Efficient Patented automatic in-
let valves—built into cylinder head—
permit full suction and compression
stroke to be utilized. *Less power re-
quired per cubic foot of air.*

Cleaner Air Oil-passing greatly reduced due to lack of
high vacuum on suction stroke—again, the result of
patented automatic inlet valves. Carbon formation prac-
tically eliminated.

Cooler Operation Cylinder head and block completely
water-cooled. Valves are held open when compressor is
idling to permit air at atmospheric pressure to pass in
and out to cool compressor.

Simpler Installation Governor connected directly to cyl-
inder head, eliminating use of remote control, fittings, etc.



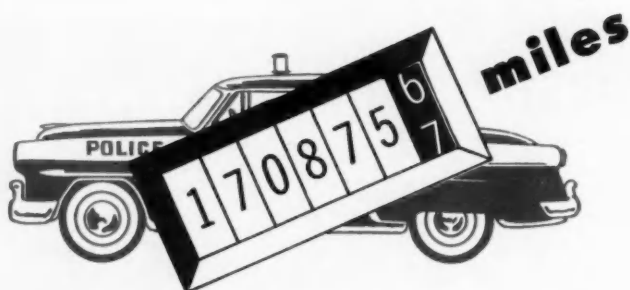
**Those who know
Power Brakes
CHOOSE MIDLAND**

**See your nearest Midland Distributor
or write**

THE MIDLAND STEEL PRODUCTS CO.
3641 E. MILWAUKEE AVE. • DETROIT 11, MICH.
Export Department: 38 Pearl St., New York, N. Y.

**GO
MIDLAND**

**AND STOP
SAFELY!**



without a recharge!



For the past 3 years, Exide ULTRA START® Batteries have been on the go in all types of severe commercial service for 90,000 . . . 100,000 . . . 120,000 miles.

Phenomenal? Just look at this:

One Exide ULTRA START outlasted 2 police cars . . . finally failed in the third, after 170,875 miles without a recharge! This battery operated day and night in patrol cars, each equipped with a high-output generator, siren, 2-way radio, flashing lights, etc.

How many miles or how many years will an Exide ULTRA START last you? We don't know. However, *we do know* that this remarkable battery, proven in years of the toughest service, will give you longer life and better performance per battery dollar . . . lowering your operating and maintenance costs.

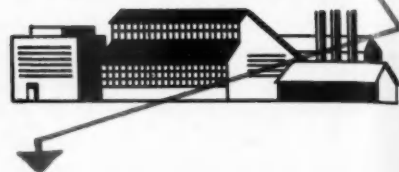
Regardless of the batteries you're now using, it will pay you to get full details on the amazing ULTRA START from your Exide Distributor. He is listed in your classified phone directory. If you prefer, write us direct.

Exide AUTOMOTIVE DIVISION
THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 2, Pa.

Exide Batteries of Canada, Limited, Toronto

Exide®
BATTERIES

FACTORY FLASHES



Reo Motors, Inc., Lansing, Mich., has been awarded its third contract for Civil Defense rescue trucks. It calls for 121 vehicles at a total cost of \$1,054,025.

Spicer Mfg. Division, Dana Corp., Toledo, Ohio, celebrated its 50th anniversary last month. It has issued an attractive booklet that traces the history of the company from the original idea of the drive shaft and universal joint to replace the chain drive to the present corporation with an estimated \$200 million a year in sales.

Griffin Lamp Co. has announced three new distribution warehouses, including: Kenmore Warehouses, Boston, Mass.; Southwest Automotive Distributors, Los Angeles, Cal.; and D. James Murray Co., Seattle, Wash.

Clark Equipment Co., Benton Harbor, Mich., has begun construction of its new plant in that city, situated on a 100-acre tract of land.

Aero-Quip Corp., Jackson, Mich., has announced that its subsidiary, Aero-Coupling Corp., Burbank, Cal., has increased its plant capacity by 5400 sq ft.

Thor Power Tool Co., Aurora, Ill., has announced purchase of Speedway Mfg. Co., Chicago. Speedway will continue operation as a division of Thor.

Clark Equipment Co., Buchanan, Mich., has established a Ross Carrier Division at its Benton Harbor, Mich., plant. The division will handle the company's line of straddle carriers.

International Harvester Co., Chicago, has announced a 2-yr expansion program for its Indianapolis, Ind., truck engine plant. It is estimated \$4 million will be spent to erect four additions to the present manufacturing and foundry buildings.

Lincoln Electric Co., Cleveland, Ohio, has announced sale of the 1,000,000th of its technical books on welding techniques.

Firestone Tire and Rubber Co., Akron, Ohio, has awarded 20 college scholarships to sons and daughters of employees in 12 states this year.

Electric Auto-Lite Co., Toledo, Ohio, reports 1953 sales of \$285,000,929, an increase of 5 per cent over 1952. Net profit for 1953 was \$10.567 million as compared with \$9.789 million in 1952.

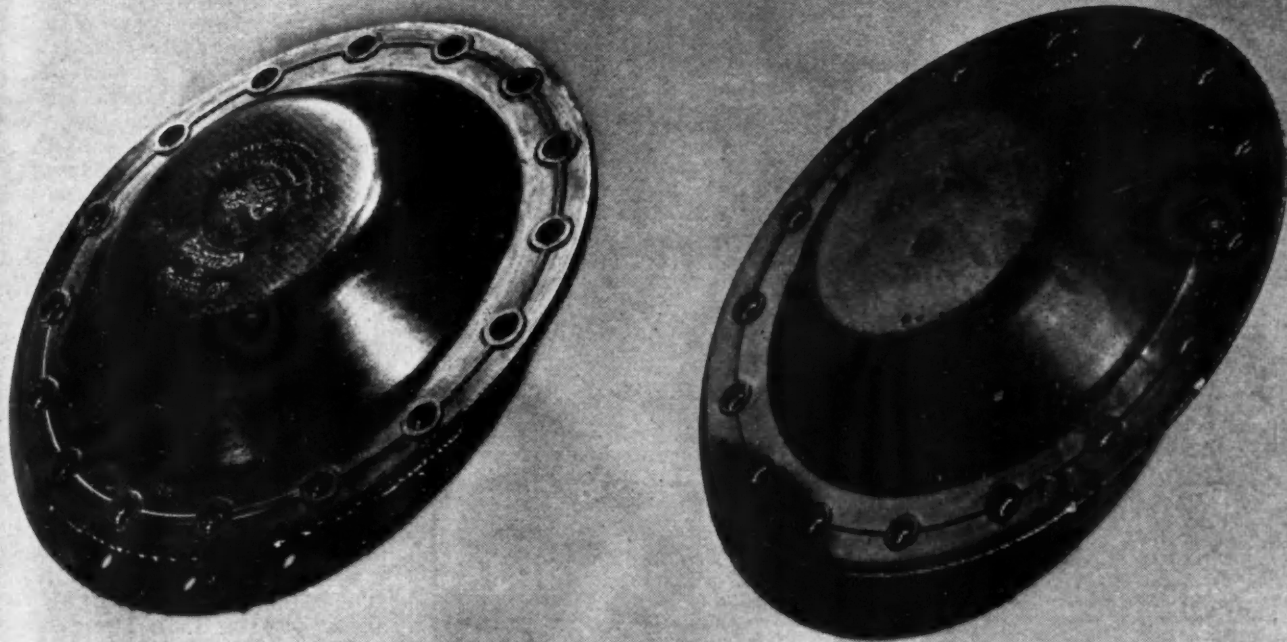
COMMERCIAL CAR JOURNAL, May, 1954

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WHICH DIAPHRAGM IS THE **phony**?



Here is an actual unretouched photograph of a genuine Bendix-Westinghouse brake chamber diaphragm alongside a phony. Their apparent similarity will fool many buyers—but from a performance standpoint they are easily distinguished. Here's why.

The genuine Bendix-Westinghouse brake chamber diaphragm (on the left) is the result of thirty years' experience in the design and development of this vital air brake system component part. It is made of the finest materials, to the most exacting standards—performance proven over the years for a million or more applications before replacement.

The phony is an out-and-out counterfeit probably produced in a hidden back-alley shop. Made from questionable rubber and unsuitable fabric, it has a performance record of from only 5,000 to 28,000 ap-

plications. The counterfeiter placed the Bendix-Westinghouse name, address, trademark and piece number on untold thousands of these faulty units—and then the forgeries were jobbed across the country through parts dealers.

Some of the country's leading operators have been victimized by this counterfeiter.

You can be sure it will not happen to you when you buy genuine Bendix-Westinghouse replacement parts from an *authorized Bendix-Westinghouse distributor!*

HERE'S WHAT WE'RE DOING ABOUT IT

Bendix-Westinghouse took legal steps to prohibit the sale of counterfeit diaphragms immediately upon their discovery. The industry is being advised of the existence of the counterfeits through Bendix-Westinghouse advertising, bulletins and other publicity.

Bendix-Westinghouse

AUTOMOTIVE AIR BRAKE COMPANY



GENERAL OFFICES & FACTORY — ELYRIA, OHIO • BRANCHES — BERKELEY, CALIFORNIA AND OKLAHOMA CITY, OKLAHOMA



C.A.B.Y. Transportation Co., Cleveland, Ohio, has moved into its new home office terminal in that city. In-

cluded are a 48-trailer dock and complete maintenance facilities.

Spector Motor Service, Chicago, has placed orders for 200 new Fruehauf trailers. Of "Hi-Cube" design, the order includes 150 vans and 50 open tops.

Heidelberg Eastern, Inc., has just acquired two new Fageol Vans to bring its fleet to a total of 22 trucks. They are used as mobile show rooms for sales of Original Heidelberg printing presses.

The Greyhound Corp., Chicago, expects delivery on the first of its order

of 500 "Scenicruiser" buses. The buses are designed for 43 passengers, 10 on a lower forward deck and 33 on a rear upper level. Air spring suspension and twin diesel engines are other features.

Davidson Transfer and Storage Co., Baltimore, Md., has announced continuation of its scholarship program. It consists of tuition, textbooks and fees for one student in the senior class at the University of Baltimore and the University of Maryland specializing in motor transportation.

Hennis Freight Lines, Inc., Winston-Salem, N. C., was awarded top prize for its match book cover, judged best in the trucking industry for 1953. Other fleets awarded certificates included: Blue Line Storage Co., Des Moines, Iowa; Old Colony Transportation Co., New Bedford, Mass.; W. T. Cowan, Inc., Baltimore, Md.; McLean Trucking Co., Winston-Salem; and Harris Express Co., Baltimore. Trailmobile, Inc., Cincinnati, Ohio, also was awarded a certificate.

H. E. Brinkerhoff and Sons, Harrisburg, Pa., has announced purchase of a 4-story warehouse in Reading, Pa.

Dan Dugan Oil Transport Co., Sioux Falls, S. D., for the third time, won the Tank Truck Trailmobile award and retains it permanently. Winners in the five mileage divisions of the Fifth National Tank Truck Safety Contest have also been selected. Tops in the class for carriers operating less than a million miles during 1953 is Interstate Transportation, Vineland, N. J., with W. S. Duckworth Transport, Post, Texas, placing second, and Teche Tank Lines, Inc., Lake Charles, La., taking third place. In the class for carriers operating between 1 and 3 million miles, Hageman Transport Co., Laurel, Mont., wins the Grand Award. Felts Transport Corp., Galax, Va., takes the Honor Award, and Cadell Transit Corp., Colorado City, Tex., gets the Merit Award. F. N. Rumbley Co., Fresno, Calif., took Grand Award honors in the 3 to 5 million mile class, with Bice Truck Lines, Laurel, Mont., receiving the Honor Award, and Walker Hauling Co., Inc., Atlanta, Ga., winning the Merit Award. Grand Award in the 5 to 10 million miles class goes to Redwing Carriers, Inc., Tampa, Fla. Honor Award was won by Petroleum Carrier Corp., Jacksonville, Fla., and the Merit Award goes to Collett Tank Lines, Salt Lake City, Utah. Dan Dugan Oil Transport Co. wins the Grand Award in the class for carriers operating over 10 million miles. Ruan Transport Corp., Des Moines, Iowa, wins the Honor Award, and Coastal Tank Lines, Inc., York, Pa., wins the Merit Award. The awards will be presented at the National Tank Truck Conference annual meeting early this month in Cincinnati, Ohio.

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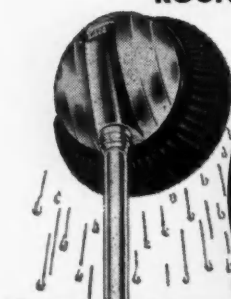
LACO HEAVY DUTY *Fountain* BRUSHES

ROUND

OBLONG

NOW
AVAILABLE
with FINGER-TIP
DETERGENT and
FRESH RINSE WATER

Control



TRAILERS



TRUCKS



BUSSES

Leading Fleet, Train, Bus and Commercial Operators look to Laco - manufacturers of commercial wash brushes Since 1855.

Durability of Laco Brushes provides unrivaled economy for commercial vehicle operators, in time, labor, and material cost savings. In building maintenance they are equally efficient for washing frame, metal, brick and cement sur-

faces. All parts replaceable without return to factory. Choice of brushes and accessories to fit your exact needs. Detergent container and water control valve on handle permit finger-tip control of both detergent and rinse water. Controls can be used together or separately.

Ask your Auto Supply or Cleaning Material dealer, or write us for catalog and prices.

LAITNER BRUSH CO.

Brush Manufacturers Since 1855

2000 BROOKLYN AVE. DETROIT 26, MICH.

LACO
means
LOWEST
COST



Water
Control

LACO
means
BEST
VALUE



Detergent
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... and proud to serve the safest
drivers on the road!

May, 1954



INTRODUCING ...

... A. M. Henderson, promoted to assistant sales manager, Barrett Equipment Co., St. Louis, Mo.

... Noah Butt, L. H. Craig and Stephen Bastean, appointed territory representatives in North Carolina, New Orleans and South Carolina respectively, Champion Spark Plug Co., Toledo, Ohio.

... Norman L. Kirsch, promoted to manager, Brooklyn, N. Y., branch office, The White Motor Co., Cleveland, Ohio.



... William R. Sahr, appointed factory sales representative, Highway Trailer Co., Edgerton, Wis.

... John R. Gregory, appointed Pacific coast sales representative, National Bearing Division, American Brake Shoe Co., New York City. He was vice president of sales, Geneva Steel Co.

... Donald C. Baker, promoted to Akron, Ohio, branch assistant manager, A. Schrader's Son, Division of Seovill Mfg. Co., Inc., Brooklyn, N. Y.

... J. A. Kigen, Jr., promoted to North Atlantic territory regional fleet account manager, The White Motor Co., Cleveland, Ohio.



... Russel C. Burns, promoted to motor truck fleet sales supervisor, International Harvester Co., Chicago.



... Frank Fritz, promoted to fleet sales manager, Toledo Steel Products Co., Toledo, Ohio.

... Walter J. Roche, Eastern seaboard sales supervisor, Mobile Communica-

tions Dept., Allen B. DuMont Laboratories, Inc., Clifton, N. J. He was with Link Radio Corp.

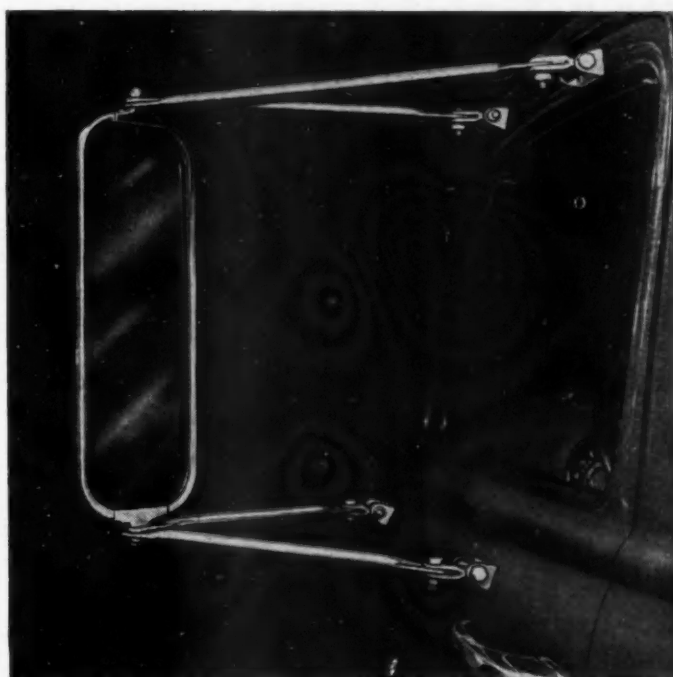
... B. A. Weldin, promoted to Southeastern United States district sales manager, Champion Spark Plug Co., Toledo, Ohio.



... Lewis H. Peterson, appointed head, Engineering Dept., Pacific Intermountain Express, Denver, Colo.

(TURN TO NEXT PAGE, PLEASE)

THE Anthes LINE



Get it!



Anthes "PANORAM" Mirror
new • big • triple-size glass

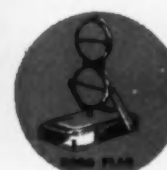
Yes, you can see more . . . and easier—faster—better with this new Anthes Panoram heavy duty mirror. You'll see that this big 85 sq. in., triple size) mirror indeed gives you a "panoramic" view. Head is heavy gauge steel; supports are welded steel tubing — lustrous plated or bright aluminum finish. Designed and made to stand up — over the road, and at a new low price. Write or see your jobber for details and price.

ANTHES FORCE OILER CO., FT. MADISON, IOWA

Anthes

THE FIRST LINE OF SAFETY

... and proud to serve the safest
drivers on the road!



Introducing . . .

Continued from Page 155

. . . Jack Jaso, Walter Rockway and Chester Shira, appointed application engineers in the Chicago, Cincinnati, Ohio, and Jacksonville, Fla., districts respectively, The Lincoln Electric Co., Cleveland, Ohio.

. . . J. B. Campbell, appointed Memphis, Tenn., and New Orleans, La., replacement division representative, American Brakeblok Division, American Brake Shoe Co., New York City.

. . . Milton J. Russell, promoted to sales manager, Automotive Division, The Briggs Filtration Co., Washington, D. C.



. . . C. E. Cole, promoted to Los Angeles, Cal., district office manager, Leonard F. Lindstrom, promoted to assistant to the western division manager, and Walter R. Stoner, promoted to Southern Cal. national accounts

and fleet sales manager, Mack Motor Truck Corp., New York City.

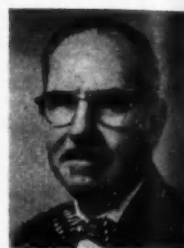
. . . R. A. Stranahan, Jr., promoted to executive vice president, Champion Spark Plug Co., Toledo, Ohio.

. . . Fred F. Roehll, promoted to vice president in charge of sales, Eutectic Welding Alloys Co., Flushing, N. Y.

. . . Richard M. Baker, promoted to advertising and sales promotion manager, Ansul Chemical Co., Marinette, Wis.

. . . Joseph G. Monnin, appointed general manager, Monark Battery Co. and Red Battery Co., Divisions of Price Battery Corp., Wapakoneta, Ohio.

. . . Forest B. Arnold, appointed fleet service engineer, Automotive Replacement Division, Thermoid Co., Trenton, N. J.



. . . Richard H. Cole, promoted to automotive trades technical service engineer, Minnesota Mining and Mfg. Co., St. Paul, Minn.

. . . R. P. Vallee, appointed eastern Wis. and upper state Mich. representative, The Cleveland Hardware and Forging Co., Cleveland, Ohio.



. . . E. H. Peterson, promoted to sales manager, Magnus Chemical Co., Garwood, N. J.

. . . William A. Burns, president, Trailmobile, Inc., elected a director, the Greater Cincinnati Safety Council, Cincinnati, Ohio.

. . . Howard T. Pullen, appointed Kan., Nebr. and western Mo. sales representative, A. Schrader's Son Division, Scovill Mfg. Co., Inc., Brooklyn, N. Y.

. . . Richard C. Carson, promoted to vice president in charge of engineering, Shuler Axle Co., Louisville, Ky.



. . . Hyman Feldman, appointed assistant general superintendent concerned with bus maintenance, New York Transit Authority, New York City. He was automotive maintenance supervisor, Capital Transit Co.

From the AIR AGE Comes a true AUTO ELECTRONIC ANALYZER

Elan INC



Elan INC BRINGS YOU *the* FIRST

Aviation tested engine analyzer for the automobile industry. . . . From "Annie's" picture patterns direct readings are taken. No technical training is needed to get at the facts of engine trouble with "ANNIE" because she gives you the facts—no conversion from meter readings required. . . .

Engine malfunctions are pin-pointed by one simple test. . . .

- ★ IGNITION
- ★ CARBURETION
- ★ COMPRESSION
- ★ Simple to use
- ★ Simple to read
- ★ ONE BASIC PATTERN



Elan INC

BLDG. 645 OAKLAND AIRPORT
OAKLAND, CALIFORNIA

GET IT THROUGH YOUR JOBBER

**"SEIBERLING THRU-WAY 125 tires
best meet the requirements of
safety and low cost per mile
necessary in our operation."**

*A test set of Thru-Way 125 tires on
one of North Star Lines' 37-passenger
diesel coaches has delivered 50,000
miles to date on traction wheels with
less than 50% tread wear.*



**"We intend to equip our fleet with
Seiberling Thru-Way 125 tires."**

**NORTH STAR LINES, INC.
Grand Rapids, Michigan**

With Seiberling's famous Heat Vents and undercut side bars, the Thru-Way 125 is bound to be cooler running than any heavy tread tire you've ever used! You know what that means in terms of tire life.

Add nylon construction to these tire features, top them off with a heavy tread, and you have an unbeatable combination for lower cost per mile! Fleet records prove it! Try a test set and see for yourself. Put your order in now with your Seiberling dealer.

SEIBERLING

AKRON, OHIO • TORONTO, CANADA

FREE!



THRU-WAY 125 is something new and sensational in truck tires... the **FIRST** heavy tread truck tire with **HEAT VENTS!**

SEIBERLING RUBBER COMPANY, Akron 9, Ohio

Dear Sirs: Please send me, without obligation, a Seiberling Truck Tire Mileage Cost Finder.

Name _____

Firm Name _____

Street Address _____

City _____ State _____

Hydraulic-Control Third Axle Introduced By Truckstell

TRUCKSTELL Mfg. Co., Cleveland, Ohio, has introduced a new trailing third axle, under the trade name "Hydro-Trac."

Operating on a simple hydraulic principle, Hydro-Trac provides selective control over axle weight distribution in ratios ranging from 50-50 for normal conditions, to 80-20 for maximum traction, to 100-0 for return trips empty. From a control in the cab, truck operators can choose the weight ratio needed to meet road conditions while the truck is rolling or standing still.

Lifts Clear of Road

For return trips when the truck is empty, the trailing axle can be quickly lifted clear of the road to provide single axle operating economy.

Hydro-Trac comes as a factory-assembled unit complete with trailing axle matching the driving axle on the original truck. Its suspension weighs

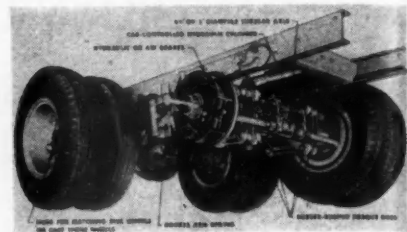
approximately 500 lb. It works equally well on trucks with various body types and on tractors with semi-trailers and is easy to transfer from one truck to another.

Weight Transfer

Heart of the "Hydro-Trac" design is the patented Willock weight transfer system operated by hand pump or high-speed electrically driven pump, either of which can be furnished. A precision built hydraulic cylinder, supported at the rear by a reinforced cross member, transfers weight from the trailing axle to the driving axle by applying torque through a trunnion cam.

Truckstell trailing third axles are available for all makes and models. Rugged but light in weight, the 4-point suspensions are manufactured of carefully machined steel, malleable castings and welded steel plate.

Three-inch spring leaf rocker arms



equalize the load over the two axles. These arms are attached to the original truck springs with special steel shackles and heat treated pins. Overloads are safely handled by retaining the truck's original helper springs.

Rubber-Bushed Torque Rods

Four heavy-duty rubber bushed torque rods maintain alignment at all times and eliminate weight transfer while braking. These rods, combined with the lateral rear axle motion permitted by free end springs, insure accurate tire tracking on the highway.

Strong, lightweight cambered tubular axles are supplied with tracks to match the truck's driving axle. Axles are supplied with various size hydraulic or air brakes, including slack adjusters, and hub or wheel equipment.

Summary Table of Fleet Accident Rates, 1950-1953

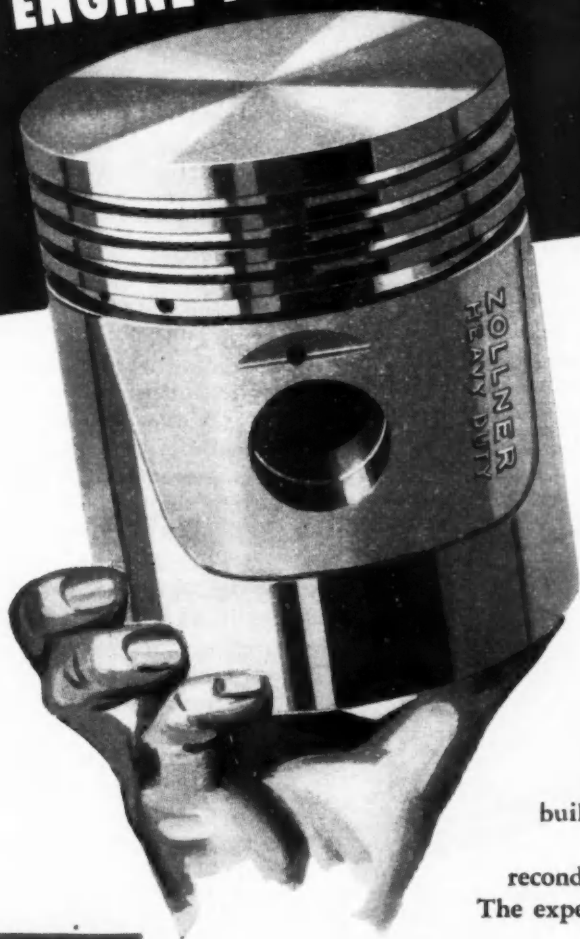
Fleets reporting in the National Fleet Safety Contest

| Fleet Classification | Year—July 1, 1952-June 30, 1953 | | | | Accidents per 100,000 Vehicle Miles* | | | | Change 1951-52 to 1952-53 |
|---|---------------------------------|--------------------|---------------------------|---------------------|--------------------------------------|-----------|-----------|-----------------|---------------------------|
| | Number of Fleets | Number of Vehicles | Vehicle Miles (thousands) | Number of Accidents | 1952-1953 | 1951-1952 | 1950-1951 | 3-Years 1950-53 | |
| TRUCKS | | | | | | | | | |
| Intercity-Truck—Common Carrier | 90 | 9,141 | 546,183 | 5,027 | .92 | 1.13 | 1.19 | .97 | -19% |
| Intercity-Truck—Private Carrier | 43 | 1,359 | 41,376 | 430 | 1.04 | 1.25 | 1.27 | 1.04 | -17% |
| Intercity-Truck—Government | 12 | 8,955 | 68,582 | 238 | .35 | .36 | .31 | .33 | -3% |
| City-Truck—Common Carrier | 62 | 3,738 | 40,735 | 4,028 | 9.89 | 10.90 | 11.18 | 10.52 | -9% |
| City-Truck—Private Carrier | 89 | 2,981 | 43,162 | 1,260 | 2.92 | 3.59 | 3.21 | 3.00 | -19% |
| City-Truck—Contract Carrier | 67 | 1,672 | 21,683 | 1,190 | 5.49 | 5.64 | 5.66 | 5.03 | -3% |
| City-Truck—Government | 25 | 4,128 | 33,110 | 553 | 1.67 | 1.84 | 1.93 | 1.56 | -9% |
| Bakeries | 65 | 3,842 | 61,300 | 1,013 | 1.65 | 1.90 | 2.05 | 1.93 | -13% |
| Beverages | 5 | 219 | 2,052 | 136 | 6.63 | 7.63 | 6.71 | 6.98 | -13% |
| Coal and Ice | 10 | 469 | 4,539 | 139 | 3.06 | 3.91 | 3.53 | 3.55 | -22% |
| Ice Cream and Dairy Products | 52 | 2,999 | 51,996 | 895 | 1.72 | 1.69 | 1.83 | 1.75 | +2% |
| Fluid Milk | 146 | 13,682 | 132,025 | 4,382 | 3.32 | 4.11 | 3.60 | 3.47 | -19% |
| Fluid Milk—Horse Drawn | 6 | 244 | 916 | 196 | 21.62 | 27.30 | 15.13 | 21.83 | -21% |
| Meat Packing | 29 | 1,840 | 46,168 | 1,358 | 2.94 | 3.06 | 3.20 | 3.24 | -4% |
| Petroleum—Intercity-Truck | 26 | 2,848 | 105,564 | 1,135 | 1.08 | 1.27 | 1.45 | 1.20 | -15% |
| Petroleum—City-Truck | 46 | 4,782 | 84,519 | 1,465 | 1.73 | 2.05 | 2.29 | 1.97 | -16% |
| Petroleum Companies (Refining, Prod., Pipeline) | 50 | 4,214 | 59,625 | 383 | .64 | .68 | .81 | .63 | -6% |
| Public Utilities | 103 | 22,934 | 248,818 | 4,395 | 1.77 | 2.17 | 2.40 | 2.09 | -18% |
| Truckaway | 57 | 8,559 | 472,167 | 4,287 | .91 | 1.13 | 1.38 | 1.11 | -20% |
| Driveaway | 36 | 223,082 | 114,956 | 1,424 | 1.24 | 1.37 | 1.74 | 1.44 | -10% |
| Small Fleets—City (Less than 10 Vehicles) | 79 | 565 | 10,318 | 310 | 3.00 | 4.27 | 7.23 | 2.69 | -30% |
| Small Fleets—Intercity (Less than 10 Vehicles) | 18 | 146 | 9,784 | 72 | .74 | 1.16 | 1.01 | .96 | -36% |
| Total, Trucks | 1,116 | 322,399 | 2,201,578 | 34,318 | 1.56 | 1.95 | 1.67 | 1.72 | -20% |
| BUSES AND TAXICABS | | | | | | | | | |
| Intercity Bus | 22 | 998 | 90,071 | 782 | .87 | 1.07 | 1.15 | 1.05 | -19% |
| City-Suburban Bus | 7 | 1,001 | 34,470 | 1,993 | 5.76 | 6.98 | 7.05 | 5.80 | -17% |
| City Bus | 23 | 4,572 | 156,242 | 12,851 | 8.23 | 8.76 | 8.54 | 8.30 | -6% |
| Taxicabs | 3 | 77 | 3,404 | 132 | 3.88 | 4.00 | 2.96 | 3.96 | -3% |
| Total, Buses and Taxicabs | 55 | 6,648 | 284,187 | 15,758 | 5.54 | 6.05 | 5.93 | 5.47 | -10% |

* The rates for 1952-1953 and 1950-1953 are based on all experience reported for these years. The rates for 1950-1951 and 1951-1952 do not represent the rates for all fleets reporting in those years, but rather what the rates probably would have been if

all of the 1952-1953 fleets had reported for the earlier years. The rates for 1950-1951 and 1951-1952 were calculated by applying to the 1952-1953 rates the year to year percentage changes which occurred among those fleets in each successive pair of years.

CUTS
MAINTENANCE COST
STEPS UP
ENGINE PERFORMANCE



Always Specify THE
 "ENGINEER APPROVED" PISTON

Used and recommended
 by over 70% of all
 Truck and Bus Manufacturers



The right piston for overhaul jobs is as vitally important as the right piston for original equipment. Be safe and sure by following the recommendation of your engine designer. Zollner Pistons are the expert product of hand-in-hand engineering development with engine builders! You can always depend on utmost performance and economy of operation when you recondition with Zollner "Engineer Approved" Pistons. The experience records of fleet owners, everywhere, prove Zollner the "best buy," always.

ZOLLNER

HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS • FORT WAYNE, INDIANA

COMMERCIAL CAR JOURNAL, May, 1954

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May Roundup

Continued from Page 100

Co., Sioux Falls, S. D.; Huttig Sash & Door Co. (Columbia Lessors), Dallas, Texas; Orlando Utilities Commission, Orlando, Fla.; F. J. Boutell, Driveaway Co., Inc., Flint, Mich.; Western Hatcheries of Houston (Columbia Lessors), Houston, Texas; Western Hatcheries of Dallas (Columbia

Lessors), Dallas, Texas; Standard Oil Co. of Indiana, Casper, Wyo.; New Way Linen Supply Co. (Columbia Transportation Service), Cincinnati, Ohio; Heintz Mfg. Co., Philadelphia, Pa.; Seven-Up Bottling Co. of Dallas (Columbia Lessors), Dallas, Texas; Ewing-Von Allmen Dairy Co., Louisville, Ky.; and Ventura Transfer Co., Ventura, Cal.

In conjunction with the ATA contest, Electric Auto-Lite Co. will also present special safety awards

to supervisors of companies placing first in each classification.

Pennsylvania Motor Truck Assn. was selected as the state trucking association that carried on the most effective program of safety promotion and will receive the ATA trophy. A plaque will be given to North Carolina Motor Carriers Assn. as the second place winner.

Pacific Intermountain Express, Oakland, Cal., was named winner of the Trailmobile Trophy, while Mistletoe Express Service, Oklahoma City, Okla., was chosen for a special award for its exceptional safety record.

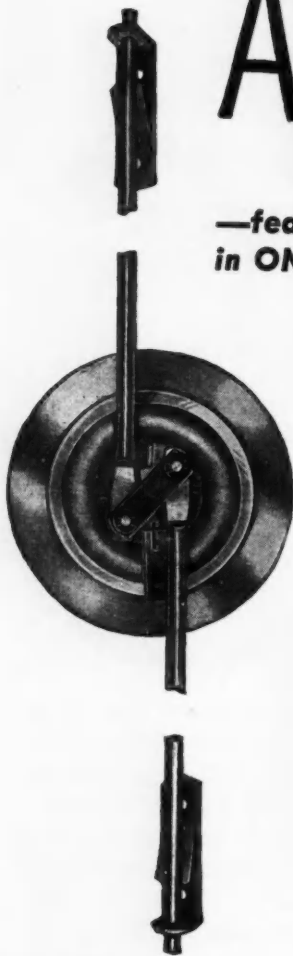
Judges of the ATA contest were: Norman Damon, vice president, Automotive Safety Foundation; Harold F. Hammond, manager, Transportation and Communication Department, United States Chamber of Commerce; and Ernest G. Cox, chief, Section of Safety, Bureau of Motor Carriers, Interstate Commerce Commission.

ANNOUNCING A few of the NEW HANSEN Products

—featuring NEW designs
in ONE-UNIT Locks

EASIER TO APPLY—simpler in design—more adaptable—faster operation—smoother performance—added dependability—HANSEN NEW ONE-UNIT Locks have features that appeal alike to designer, builder, user.

INCLUDED are—Lock with handle, rods, mechanism in ONE unit—Lock and Flush Handle in ONE unit—Tool Box Lock and Handle in ONE unit. All these and other Hansen products illustrated and described in FOLDER NO. 90. SEND FOR YOUR COPY!



106-L LOCK. Handle, operating center mechanism and rods combined in ONE unit. Lock includes handle, rods and guides. Unit comes complete, ready for instant installation. The 79 series Flush Handle (79-L, 79-M, 79-S) and the 81 series (81-L, 91-M, 81-S) are available for use with this Lock.

46-H TOOL BOX LOCK. Handle integral with bushing and locking bolt. Easily applied to wood or metal. Strong, compact, light weight, it finds ready use on ALL TYPES of small doors, for commercial or industrial use. Size of Lock, 3" x 1". Weight, 1/4 lb.

52 LOCK. Made especially for use with Flush Handle. Bushing is located 4" from end of Lock, for adapting Lock to Flush Handle use. Lock is also usable with T Handles, Curved and Offset Handles. Can be applied to small and medium-size doors. Lock is made of heavy-gauge steel.

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE. CHICAGO 40, ILL.



REQUEST
FOLDER
No. 90

TOFC Questions

Limiting its consideration to the basic legal questions involved, the ICC has reframed the questions on trailer-flatcar operations which are due for hearing next month. With initial consideration limited to 12 questions, other problems, questions and suggestions may be considered at a future date.

The questions to be considered:

1. May a railroad transport its own freight (i.e. freight tendered it by shippers for movement by railroad, on railroad bills of lading, and at railroad rates) in its own trailers on flat cars, without holding any authority under part II of the Interstate Commerce Act? Otherwise stated, do such operations constitute carriage by railroad subject to part I or carriage by motor vehicle subject to part II?

2. If a railroad transports its own freight in trailers on flat cars, is the motor operation of the trailers in collection and delivery service at the termini of the rail movement an operation within the partial exemption of section 202(c) (1) of the Act?

3. May a railroad, under provisions of tariffs duly published and filed by it, but without holding any authority under part II, transport freight-laden trailers on flat cars, the trailers having a prior and/or (TURN TO PAGE 176, PLEASE)

owner Frank Transfer Co. loaded trailer truck speeds a lot of punis "We start 1950, and ra how far they tires were d miles each w failure. And original trea vious experie didn't pay. N

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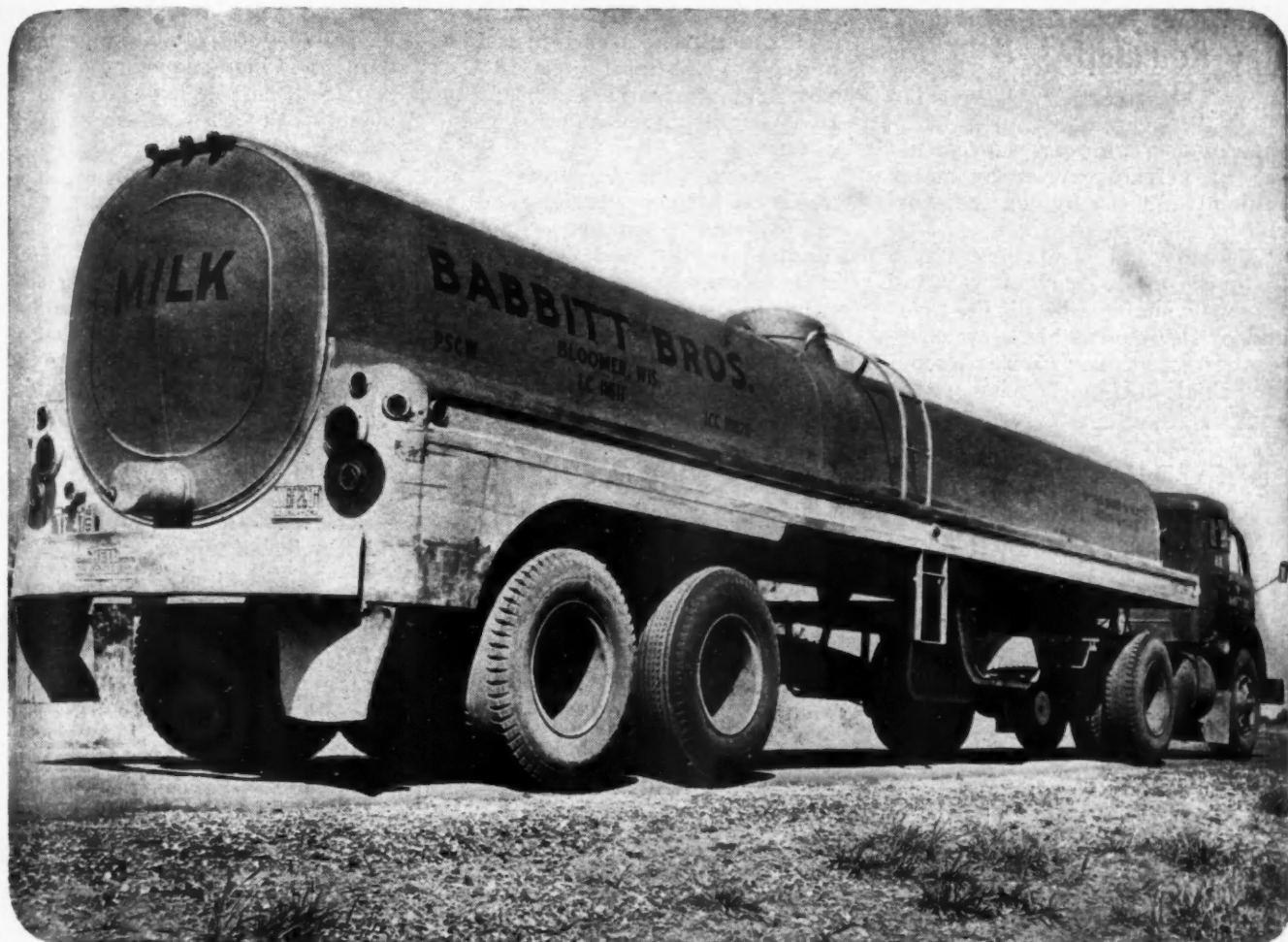
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**"We have never had
a blowout or road failure
with NYLON CORD TIRES"**



"Our 26 tank truck trailers are in almost continuous service hauling fresh milk from Wisconsin to such distant points as Texas and Philadelphia," reports

owner Frank Babbitt of Babbitt Brothers Transfer Co., in Bloomer, Wisconsin. "With loaded trailers weighing 60,000 pounds and truck speeds averaging 50 m.p.h., tires get a lot of punishment.

"We started using nylon cord tires in 1950, and ran a test on 56 of them to see how far they'd go before wearing out. Those tires were driven an average of 174,000 miles each without a blowout or a carcass failure. And they went this mileage on the original tread—without recaps. Our previous experience indicated that recapping didn't pay. Now we're recapping tires after

about 100,000 miles, and we're getting almost double the mileage we got from any other tire we've used before. So far, we have never had a blowout or road failure with a nylon cord tire."

Whether your fleet is large or small, you can make this test: Try one set of nylon cord tires. See how their remarkable resistance to bruising permits them to take hard body punches and safely support your heaviest loads. See how they reduce road delays and carcass failures... give a lower cost per mile.

A number of rubber companies have nylon cord tires available. (Du Pont makes nylon fibers, does not produce tires.) Ask your dealer about nylon cord tires today.

FREE BOOKLET on nylon tires—write for your copy. Textile Fibers Dept., Room 2520-J-5, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware. Offer good in U. S. only.

**NYLON CORDS PROTECT
AGAINST ALL THESE
CAUSES OF TIRE FAILURE**

HEAT—Nylon cords can withstand hotter temperatures than a tire will ever encounter on the highway in normal operations.

FLEX FATIGUE—Nylon's resilient strength makes tire cord stand up under the complex compression-tension flexing that takes place every time a tire turns—reduces flex-fatigue failure.

BRUISE DAMAGE—Nylon's toughness virtually ends cord ruptures caused by tires hitting curbs and holes at high speeds.

MOISTURE—Nylon minimizes tire failures caused by moisture seeping into cuts. Nylon's "water-resistance" is one of the reasons it's so popular for fishing lines and commercial fishing nets.

DUPONT NYLON for TIRE CORD

BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

COMMERCIAL CAR JOURNAL, May, 1954

May Roundup

Continued from Page 174

subsequent highway movement: (a) by private carrier by motor vehicle; and (b) by contract carrier by motor vehicle?

4. Under the conditions stated in question 3, may a railroad transport such trailers if the prior and/or subsequent highway movement is by common carrier by motor vehicle? If so, to what extent

must the railroad ascertain and be subject to the limitations in the motor common carrier's certificate as to (a) territory and (b) commodities?

5. May a railroad engaged in trailer-on-flat-car service and a motor common carrier establish through routes and joint rates covering movement of the motor common carrier's trailers on the railroad's flat cars?

6. May a railroad engaged in performing trailer-on-flat-car ser-

vice under joint-rate arrangements with some motor common carriers refuse to establish such arrangements with other motor common carriers equally eligible under the law to participate in such arrangements?

7. As between a railroad and a motor common carrier whose loaded and empty trailers are moving in the railroad's trailer-on-flat-car service, is the relation that of connecting carriers (a) where the arrangement is for substituted-rail-for-motor service; (b) where the arrangement is for other than substituted-rail-for-motor service?

8. May a railroad, under provisions of tariffs duly published and filed by it, but without any authority under part II, transport freight-laden trailers on flat cars, the trailers having a prior and/or subsequent highway movement in freight forwarder service?

9. May a railroad engaged in trailer-on-flat-car service and a freight forwarder establish through routes and joint rates covering movement of the freight forwarder's trailers on the railroad's flat cars?

10. May a railroad engaged in performing trailer-on-flat-car service under joint-rate arrangements with motor common carriers refuse to publish and file appropriate tariffs and to transport the freight-laden trailers of (a) contract carriers by motor vehicle; (b) private carriers by motor vehicle; (c) freight forwarders?

11. May a railroad, by provisions in its tariff, make its trailer-on-flat-car service available to private carriers but not to freight forwarders?

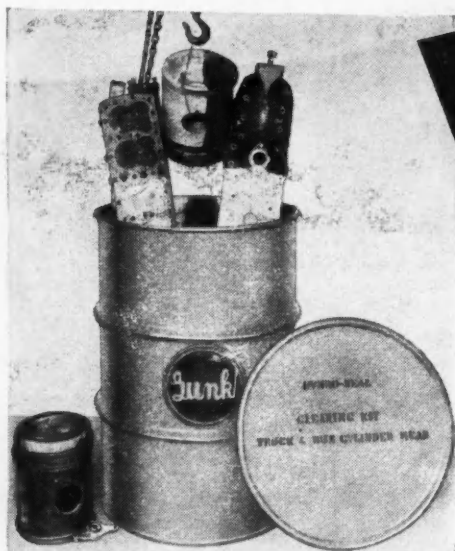
12. If a freight forwarder has a contract with a motor common carrier and if a trailer tendered to a railroad carries the identification of the motor common carrier, must the railroad providing trailer-on-flat-car service accept as compensation its division from the motor common carrier under the motor-rail joint rate rather than accept charges based on rates published in the railroad's tariff?

Trailer-Ship Dock

McLean Trucking Co.'s projected trailer-ship service has been smiled on by the city fathers of Providence, R. I. While the proposal by McLean to operate a

(TURN TO PAGE 178, PLEASE)

NO MORE CARBON SCRAPING



U. S. Pat. No. 2,107,288

NEW 60 GALLON SIZE

Gunk Hydro-Seal cylinder head and crankshaft cleaning kit. Large enough to take nearly all standard assemblies. Makes purchase of cleaning tanks unnecessary for many shops.

REFUSE SUBSTITUTES

Without the Genuine GUNK trademark, the product may be a cheap imitation . . . partly diluted, will not afford the long life and corrosive protection given by GUNK. Flatly refuse substitutes.

1. Now! You can clean a cylinder head, crankshaft or block easily and completely bare metal clean . . . just as a carburetor comes bright out of a Gunk Hydro-Seal Bench Kit.
2. Normal Service Life 1 year (U. S. Pat. 2,107,288)
3. Works hot or cold . . . Self-Scouring . . . Self-Emulsifying.
4. Parts rinse bright automatically in seal.
5. Safe cleaner for aluminum base alloys.
6. Patented Performance and long life.

LABOR SAVER . . . LIQUID TOOL

Cleans cylinder heads of carbon without scraping . . . cleans water side of cylinder heads of insulating algae, grease, sludge and scale—thus restoring original thermal efficiency built into engine by manufacturer.

SOLD BY BETTER JOBBERS EVERYWHERE

WRITE FOR NAME OF NEAREST STOCKING JOBBER



IMMEDIATE DELIVERY
1 PINT OR A
TANK CAR



CURRAN CORP.
Mfg. Chemists
LAWRENCE, MASS.

Nothing
Decarbonizes
and Cleans
CYLINDER HEADS,
CARBURETORS,
PARTS
Like...

More Potent HYDRO-SEAL GUNK DUNK

FAGEOL VANS assure Faster Load Handling



At the warehouse, on the road, and making deliveries—Fageol Vans speed up trucking operations. Photos show one of 7 Vans used daily by Barry, Inc., parcel service, Milwaukee. Vans are available in 20 to 35 ft. body lengths and 72 to 98 inch inside heights. Capacities are 713 to 1,945 cubic ft. International R-160-170-180-185-190-200 series chassis.

On average operations, where wages of driver and helper account for at least 60% of total operating costs, Fageol users in metropolitan areas report a 15% increase in crew efficiency.

Load-handling savings are due to maneuverability, ease of parking, maximum driver visibility, ideal location of side and bulkhead doors, convenient low floor and step height. Also, Fageol Van's windshield, steering, instruments, controls . . . all features are engineered and installed for maximum driver and helper comfort.

This 15% efficiency increase in metropolitan areas saves as much as \$2,500 per truck annually.

A-9177

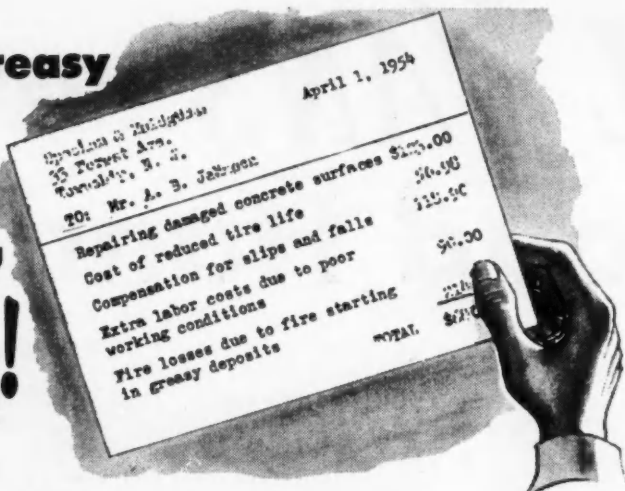


FAGEOL VANS manufactured by
the Twin Coach Company, Kent, Ohio, are sold
by all International Dealers and Branches

for information, write to

INTERNATIONAL HARVESTER MOTOR TRUCK SALES DEPT.
180 NORTH MICHIGAN AVENUE CHICAGO 1, ILLINOIS

Dirty, Greasy Shop Floors Cost You plenty!



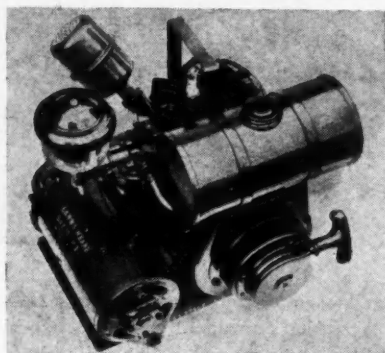
Floor life is shortened. Tire rubber is attacked. Working conditions are 'way below par. And you never can tell when the slippage and fire hazards of greasy, oily floors will result in a really man-sized bill for damages.

Clean Shop Floors Cost You Less than 4¢ per 100 Sq. Ft.

...when you clean them with Magnus Cement Cleaner. It's sure...safe...and it's good for your floors, because it not only cleans, but hardens and whitens them as well. Ask for details on the Magnus 30-day trial offer, which does not obligate you in any way.



MAGNUS CHEMICAL CO., INC.
38 South Ave., Garwood, N. J.
In Canada: Magnus Chemicals, Ltd., Montreal
Service Representatives in Principal Cities



ATTENTION

Radio equipped high current demand construction trucks.
Start truck in less than 5 minutes from dead battery.

TWO MODELS

Model B 6 volts Model C 12 volts
At 275 watts

DON'T GET CAUGHT WITH YOUR BATTERY DOWN! INSTALL A LANE and BEANE AUXILIARY GENERATOR

—for recharging low batteries without removing them from the vehicles.

1. **SAVE GASOLINE**
Motor Wear
Out of service time.
2. Provides for higher electrical loads on system without danger of stalling from dead battery.
3. **REQUIRED SPACE**
Width, 11 3/4"
Height, 14 1/4"
Length, 12 1/2"

Operator simply starts this gasoline engine when battery is low. Generator quickly recharges the battery without removing it from vehicle. In operation successfully on public utility fleet trucks for more than a year. Exceptionally valuable for these and off-the-road equipment.

Without obligation, write for complete information and prices.

LANE & BEANE CO.

2934 Arunah Ave.

Baltimore 16, Md.

May Roundup

Continued from Page 176

trailer-ship service (CCJ, March, p. 62) has yet to be approved by the ICC, Providence City Council has OK'd construction and financing of a terminal for the service at the city's municipal wharf, subject to approval by the state's General Assembly and by the voters next November.

1954 Truck Trailer Shipments

| | February | Two Months |
|--|--------------|--------------|
| Vans | | |
| Insulated and refrigerated | | |
| Steel..... | 21 | 60 |
| Aluminum..... | 192 | 386 |
| Furniture | | |
| Steel..... | 97 | 201 |
| Aluminum..... | | |
| All other closed-top vans | | |
| Steel..... | 450 | 1,120 |
| Aluminum..... | 966 | 1,316 |
| Open-top | | |
| Steel..... | 84 | 198 |
| Aluminum..... | 60 | 150 |
| Total—Vans..... | 1,570 | 3,411 |
| Tanks | | |
| Petroleum..... | 393 | 707 |
| All other..... | 53 | 83 |
| Total—Tanks..... | 446 | 790 |
| Pole, Pipe and Logging | | |
| Single Axle..... | 75 | 136 |
| Tandem Axle..... | 61 | 95 |
| Total..... | 136 | 231 |
| Platforms | | |
| Racks, livestock and stake..... | 44 | 101 |
| Grain bodies..... | 39 | 78 |
| Platforms (flats), all types..... | 269 | 721 |
| Total—Platform..... | 452 | 900 |
| Low-bed heavy haulers..... | 498 | 1,068 |
| Dump trailers..... | 49 | 94 |
| All other trailers..... | 906 | 2,063 |
| Total—Complete Trailers..... | 4,059 | 8,997 |
| Chassis only..... | 165 | 304 |
| Total—Trailers and Chassis..... | 4,224 | 9,301 |

Swing-up Seats

Truck seats in the 500 COE units which GMC is now building for Riss & Co. will swing up to give access to the engine through hinged floor boards. The feature may be later added to regular GMC production models.

Carriers Offer Scholarship

Alabama Trucking Assn. has established a \$500 competitive scholarship for undergraduate students majoring in transportation in the Department of Economics and Business Administration at Alabama Polytechnic Institute.

Sun Joins Anti-Knock Race

Sun Oil Co. is the latest firm to join the industry-wide race to up-grade gasoline quality. It has announced a new high anti-knock regular grade fuel which will be (TURN TO PAGE 181, PLEASE)

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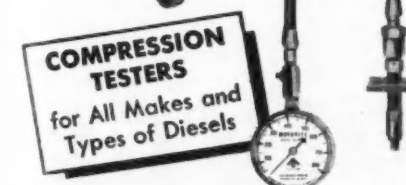
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May, 1954

Diesel SHOP EQUIPMENT



Other Diesel Shop Equipment:

- Nozzle and Injector Cleaning Kits •
- Lapping Blocks and Sets • GM 71 Engine
- Service Tools • GMC Coach and Truck
- Tools • Fuel Pump Calibrating Stands

WRITE TODAY for our complete Shop Equipment Manual showing these and more than 300 other testers and tools engineered specifically for Diesel maintenance and repair.

Bacharach Industrial Instrument Co.
7301 Penn Avenue • Pittsburgh 8, Pa.

May Roundup

Continued from Page 178

marketed in competition with premium-grade fuels of other refiners. The company will continue its policy of one-gasoline, one-price.

Slow-Down Campaign

Concentrating on the speeding driver, a 24-State highway safety campaign begins Memorial Day and will continue until Labor Day. The program is an expanded version of a campaign carried on last summer in 11 Northeastern states which relied on strict enforcement of speed limits to help reduce accidents. It has now been expanded to include most states east of the Mississippi River.

Brake-Part Injunction

Mutual Truck Parts Co., Chicago, has replied to Bendix-Westinghouse's request for injunction against sale of alleged counterfeit B-W brake parts (April issue, page 382). Says Mutual, the parts under question were bought from a recognized source of supply as genuine B-W brake diaphragms.

New Metro Body

New International Metro flat-back bodies are now available on three RM-150-series chassis. Designed mainly for pallet or tray loading by bakeries, the new body is seven inches longer than the standard flatback model. It increases capacity from 392 to 417 cu ft.

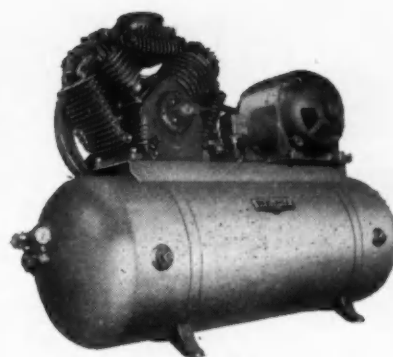
Tax Reminder

Ohio highway use permits were due for renewal April 1, but by mid-month there were reports that approximately half of the truck operators who registered to pay the state's axle-mile tax last year had failed to obtain new permits.

Exemption for Reefers

The ICC ruling which requires that carriers operate interchange equipment with their own drivers while it is within their territory has been postponed until March 1, 1955, as far as refrigerated equipment is concerned. The postponement applies only to those common carriers using interchange leased equipment to carry perishable commodities in refrigerated trucks.

(TURN TO NEXT PAGE, PLEASE)



New DeVilbiss Air Compressor pays for itself

It's true. Many times a new DeVilbiss Air Compressor will actually pay for itself out of power savings alone! DeVilbiss Air Compressors give you up to 22.6% more air per power dollar. You gain, too, in lower maintenance and depreciation costs. If you have a compressed air problem, contact your local DeVilbiss jobber today.

Every DeVilbiss Air Compressor, from 1/2 to 15 hp., offers you: A Dependable DeVilbiss Compressor Unit, Check Valve Manifold, Automatic Pressure Switch, Quality Electric Motor or Gas Engine, A.S.M.E. Tank, Outlet Manifold and Quiet Efficiency V-belt Drive.

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FOR BETTER SERVICE, BUY

DEVILBISS



Tandem Trac

tracks
on the curve
aligns
on the straight away
automatically

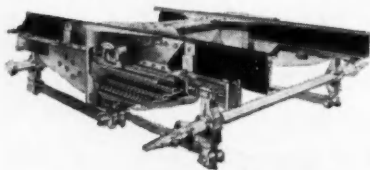
TandemTrac's radius rods let both axles conform to highway curves and contours — automatically align wheels on the straight-away.

TandemTrac ends tire-killing misalignment, dog tracking, maintenance problems; produces unbelievable tire life because side scuffing is virtually eliminated on truck, tractor or trailer. TandemTrac delivers trouble-free operation, greater fuel mileage; reduced maintenance costs, and more tire mileage than you'd believe possible anywhere.

TandemTrac is an all-purpose suspension for trailing axle, pushed axle, dual drive or trailer tandems. Its desirable features include variable rate springs to protect cargo and equipment; automatic 50-50 load distribution for full legal payloads. TandemTrac's big rocking-chair bearings require no lubrication, ever! Feature for feature, TandemTrac weighs less, costs less to own, than any suspension you can buy.

TandemTrac was created by the Truck Equipment Co., Inc., of Buffalo, New York, for thirty years pioneers in the field of third axles, truck suspensions, and cost-reducing equipment for America's motor trucks and trailers.

Get the whole story of TandemTrac, the suspension that does the job tandems are supposed to do — and does it better. Write or mail the coupon today.



TRUCK EQUIPMENT CO., INC.
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Gentlemen:
Please send literature describing the new Tandem-Trac Suspension.

NAME _____ TITLE _____

FIRM _____

NATURE OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

May Roundup

Continued from Page 181

Firestone Joins Foundation

The Firestone Tire & Rubber Co., Akron, Ohio, will support the program of the ATA Foundation, Inc., according to announcement by H. D. Tompkins, vice-president in charge of sales for the company. This move closely parallels the position Firestone took in 1918 when it instituted and sponsored the nation-wide "Ship-By-Truck" movement.

New State Laws

New laws recently enacted by the various states include:

Arizona: S 14—exempting star route carriers from property tax imposed on property carriers. S 20—authorizing registration of truck-trailers at special fees that will cover any trailer with which they might be operated and eliminating trailer registration in such cases. S 88—authorizing non-resident vehicles to register for one, two or three months in lieu of full annual registration.

Kentucky: H 196—authorizing county courts to fix speed limits. S 228—increasing required insurance coverage for all carriers and imposing fees in addition to registration on u-drive-it property carrying vehicles. H 299—permitting Ohio licensed trucks to operate in Kentucky cities on the Ohio border and within 10 miles of such cities without paying the Kentucky retaliatory weight tax. H 507—amending motor carrier seat tax to \$5 per seat for first 31 seats and \$8 per seat for those above 31. H 461—authorizing school buses and common carriers of passengers to stop on main traveled portion of highways.

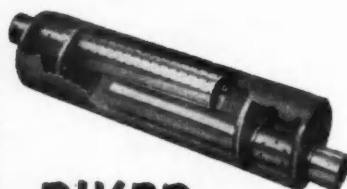
Maryland: S 57—increasing headlight requirement to require high beam to reveal objects 350 ft ahead.

Michigan: S 1162—requiring lower beam of headlight reveal objects 100 ft ahead and providing that high beams not strike eyes of approaching drivers. H 34—increasing maximum combination length to 55 ft until Jan. 1, 1960. S 1267—authorizing PUC to permit buses a width of 102 in. on highways 20 ft or more wide.

New Jersey: H 239—repealing law requiring special driver licenses for tractor-trailer drivers.

New York: S 2650—reducing maximum combination length to 45 ft
(TURN TO PAGE 184, PLEASE)

Reduces Excessive Exhaust Noise



RIKER

QUIET TONE

Heavy Duty TRUCK & BUS
MUFFLERS

Improve public relations by installing Riker "QT" heavy duty truck and bus mufflers. The unique and exclusive Riker design serves a dual purpose:—

1. Reduces excessive exhaust noise.
2. Gives long, economical muffler life.

Riker Manufacturing designs and builds heavy duty mufflers exclusively. Therefore, these mufflers must meet all requirements in use. Riker "QT" mufflers are proven in use in cities and on highways for over three years.

OPERATORS! MAINTENANCE MEN!

Prepare now for critical months ahead. Write for complete data and prices on mufflers and exhaust system accessories. Or, see your jobber.

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4809 Detroit Ave., Toledo 12, Ohio

DESIGNERS-MANUFACTURERS
Heavy Duty

MUFFLERS

Exclusively

COMMERCIAL CAR JOURNAL, May, 1954

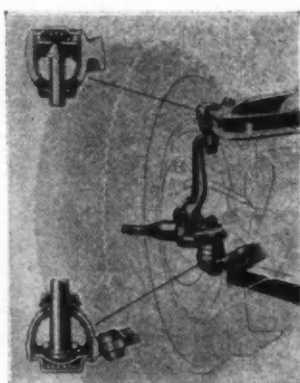
Why did LINCOLN



and **MERCURY**

adopt

Ball-Joint Front Suspension?



Because today's modern cars need greater stability, easier steerability!

...and that's not all

The growing trend towards increased engine output places a greater emphasis on easier, safer steering and over-all stability. That's why Thompson's front suspension ball-joints . . . *the first major development in front wheel suspension in 20 years* . . . were adopted two years ago on the Lincoln. And now this modern suspension is incorporated into the new Mercury.

Other Advantages, Too

There are five *additional* automotive problems solved by ball-joint front suspension: • Creating new space for wide modern engine design • Cutting the manufacturer's assembly line cost • Eliminating front suspension and steering bind • Reducing lubrication points from 12 to 4 • Increasing service life *many times over*.

Half-Century of Teamwork

This "Engineered Steering" development by Thompson Products engineers in conjunction with Ford Motor Company engineers, is typical of Thompson's side-by-side cooperation with the automotive industry over the past 50 years.

Yours for the Asking

If you have a steering-linkage problem you'd like to discuss with Thompson's skilled and experienced Steering-Linkage Engineers, write, phone or wire Thompson Products, Inc., Michigan Plant, 7881 Conant Avenue, Detroit 11, Michigan.

You can count on

Thompson Products

MICHIGAN PLANT: • DETROIT • FRUITPORT • PORTLAND

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and
For the road**

**Change Big Tires Fast!
NEW TIRE DOLLY**



Tire Dolly saves backs—makes tire change the work of a moment, without strain.

Wonderful in shop or station or on the road. For 30 to 300 lb. tires. Simply roll tire onto platform-cradle and center wheel over lugs by shifting dolly handle up, down, sideways. Balances perfectly.

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CF-80 Tire Dolly \$8.95

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THE THREE STAR SAFETY FLATER



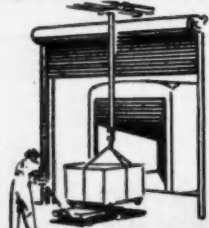
will protect your man against flying lock rings

and enable you to meet insurance underwriters specifications for safety

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Ideal for loading docks, trucks, or any doorway. They travel straight up and down; coil out of the way; make all floor and wall space around doors fully usable all of the time; give all-metal protection against fire, wind, theft. Built in any size. Motor or manual operation. Write.

The Kinear Mfg. Co.
2100-20 Fields Avenue
Columbus 16, Ohio

KINNEAR ROLLING DOORS
Saving Ways in Doorways

May Roundup

Continued from Page 182

after Feb. 1, 1960; increasing gross weight limit formula to 850 (L plus 40) and eliminating reference to three axles; setting maximum gross weight limit at 65,000 lb. H 1956—permitting 3-axle buses a length of 40 ft. H 3279—requiring semi-annual inspection of all motor vehicles at state licensed inspection stations and prohibiting operation of vehicles after Sept. 1, 1955, without inspection certificate. S 708—requiring applications for decrease in gross weight in connection with ton-mile tax permit be made only in January. S 1527—authorizing PSC to require buses with 11 passenger or over capacity operating on trips of more than 25 miles be equipped with speed recording devices. H 2187—exempting well drilling vehicles and tractor-trailer combinations so used from registration. S 2794—exempting all dump trucks from Carrier Regulatory law.

Rhode Island: H 825—legalizing new multiple-beam type headlights expected to be put on new vehicles by manufacturers. H 824—providing for inspection of all for-hire passenger carrying vehicles by Registry of Motor Vehicles.

Virginia: S 256—making non-resident private property carriers having three or more axles subject to state fuel use tax. S 375—defining log trailers and exempting them from inspection. S 95—requiring vehicles or combinations having carrying capacity in excess of 22,500 lb be equipped with rear fenders or approved mudguards. S 262—providing gross weight of buses with 2 axles not less than 12 ft apart with not less than 6 tires shall not exceed 36,000 lb and limiting gross axle weight of such buses to 18,000 lb. H 535—increasing amounts required under financial responsibility laws to \$10/20,000. S 357—making provisions relating to assignment of risks available to motor carriers required to carry liability insurance.

(TURN TO PAGE 186, PLEASE)

FRINK SNO-PLOWS

Both "V" TYPE and ONE WAY BLADE TYPE

hand or power hydraulic control

FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

FRINK SNO-PLOWS, INC., CLAYTON, 1000 1st., N.Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. LTD., TORONTO, ONT.

**HEAVY DUTY
MOTOR TRUCKS
GASOLINE ELECTRIC
GENERATING SETS**

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LANSING, MICHIGAN**

WOHLERT PARTS have been installed universally for over 30 years by Independent Repairmen, Fleet Owners and Car Dealers. They have been COMPARED & COPIED.

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FREE book gives facts on air cooled Tru-Stops, the safer, more dependable Emergency Brake

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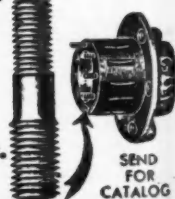
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REAR WHEEL STUDS for all Trucks

Order from Your Jobber



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TRACTION POWER

to "Go Anywhere"



NAPCO

POWR-PAK

4 WHEEL DRIVE

*Completely Proven

A new improved model of the same military-type 4 wheel drive chosen by the U. S. Armed Forces for the hundreds of thousands of Chevrolet trucks used throughout the world during World War II.

Utilizes Standard Replacement Parts

Because all replacement parts for the entire differential of the front axle assembly are available at any Chevrolet dealer, many of the maintenance problems formerly associated with 4-wheel drive units for Chevrolet trucks have been solved.

Standardizes Your Fleet

Chevrolet trucks equipped with the NAPCO 4 wheel drive remain unchanged except for the addition of the Powr-Pak itself. No special maintenance stock of parts is needed.

See our specifications in the
CCJ Truck Specifications
Section of this issue.

WITH 2 SPEED RANGE FOR

CHEVROLET TRUCKS

UTILIZING STANDARD REPLACEMENT PARTS

Now, for the first time, you can buy a Chevrolet truck, world's best truck value, equipped with NAPCO Powr-Pak, world's most proven* 4-wheel drive. Your local Chevrolet dealer can order your new Chevrolet truck equipped with the NAPCO Powr-Pak, or can convert trucks of your present fleet.

NAPCO's Powr-Pak gives your Chevrolet trucks the extra traction power to "go anywhere" . . . over rough terrain, through ice and snow, mud and sand! It reduces costly "down time" . . . it enables you to keep bigger payloads rolling whether it's over highways or across tough "off the road" terrain.

What's more, NAPCO Powr-Pak equipped Chevrolet trucks give you all the ease of handling features you've always wanted. At high speed operation over highways there's not a trace of whip or weave . . . no fighting the wheel. And, when the going gets tough "off the road," just a flip of a lever gives you finger tip control of the extra traction power necessary to get bigger payloads through on schedule. The normal easy turning and handling characteristics of Chevrolet trucks are not affected by the NAPCO Powr-Pak installation.

See your Chevrolet dealer, or write for complete information! The low cost of a completely equipped Chevrolet 4-wheel drive truck will surprise you — hundreds of dollars less than any 4-wheel drive in comparable capacity.

NAPCO PRODUCTS DIVISION

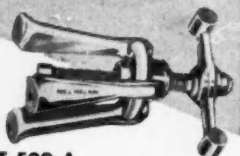
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Make hard jobs *EASY* with QUALITY-FORGED JOB-DESIGNED **KEN-TOOLS** ★ UNIVERSAL WHEEL PULLERS ★ CAR AND TRUCK STANDS

T-500

Wheel Puller, forged from chrome-nickel alloy. Serves 98% of all cars and light trucks. Tougher, lasts much longer.



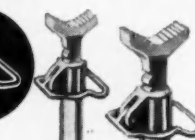
T-500 A

Wheel Puller Adaptor converts any stud-type puller for Ford service.



2-Ton Car and Truck Stand with quick-adjusting ratchet. Can't release by accident. Forged, non-tip base.

T-124



T-125

7-Ton Car and Truck Stand. All features of 2-ton model.

SEE YOUR JOBBER on the complete line of Job-Designed Ken-Tools. Forged by the largest exclusive manufacturer of top-quality Tire-changing Tools and Equipment. THE KEN-TOOL MFG. CO., AKRON 5, OHIO.



The Tube Coupling with the Vibration and Shock Absorbing Sleeve.

IMPERIAL FLEX FITTINGS

Ideal for trucks and fleets because they stand up under



**MAJOR VIBRATION SHOCK
MINOR TUBE MOVEMENT**



This Synthetic Elastic Sleeve Absorbs Vibration and Shock... assures a positive pressure-tight seal... stands up under the most severe operating conditions.



THE IMPERIAL BRASS MFG. CO.
1209 W. Harrison St., Chicago 7, Ill.

IMPERIAL

May Roundup

Continued from Page 184

Safety Awards

Fleets awarding their outstanding, safe drivers this past month included:

Hugh Breeding, Inc., Tulsa, Okla.—to 21 drivers. Fifteen of the drivers received National Safety Council awards for driving four years without an accident.

Clairmont Transfer Co., Escanaba, Mich.—to 12 drivers with five or more year no-accident records. All the company's drivers with no-accident records in the past year shared in a \$4200 cash bonus.

Holland Motor Express, Holland, Mich.—to seven drivers. Top winner has a 10-year no-accident record.

Associated Transport, New York City—to 1634 drivers in 1953. The total was announced at a recent meeting of the fleet's regional safety supervisors.

C and D Motor Delivery Co., Cincinnati, Ohio—to two drivers. Both have completed 10 years of truck driving without an accident of any kind.

Jack Cooper Transport Co., Kansas City, Kan.—to 139 drivers and 21 wives. The drivers record totals 356 years of safe operation. The wives awarded were those of the top drivers in the group.

Pacific Intermountain Express Co., Oakland, Cal.—to 566 drivers in 1953. They represent a total of 1870 years of safe truck driving.

Commercial Motor Freight, Inc., Columbus, Ohio—to 401 drivers. One driver has a 16-year record, another has a 15-year record, two have 14 year records, two have 13-year records, six have 12-year records, five have 11-year records, nine have 10-year records, nine have nine-year records, 20 have eight-year records, 25 have seven-year records and 33 have six-year records.

West Coast Fast Freight, Inc., Los Angeles, Cal.—to 29 drivers. Total record for this group of over-the-road drivers was 174 years of safe driving.

Arrow Transportation Co., Portland, Ore.—to 19 drivers. They completed 1,031,905 miles of truck driving last year without a chargeable accident.

WOLF'S HEAD HEAVY DUTY MOTOR OIL 100% PURE PENNSYLVANIA

Exceeds

EVERY REQUIREMENT
FOR HEAVY DUTY OIL



"Cleveland" FORGED
Quality Body Hardware

"Cleveland" Forged Quality Body Hardware includes fittings, hardware, locks, hinges and other accessories for modern busses, trailers, trucks, and all types of vehicles.

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SAVE TIME AND MONEY

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Over 49 models for trucks, cars, boats, trains, factories, etc. Commanding, powerful, harmonious tone. Beautiful chrome or lacquer finish. Fully guaranteed. Write for details.

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